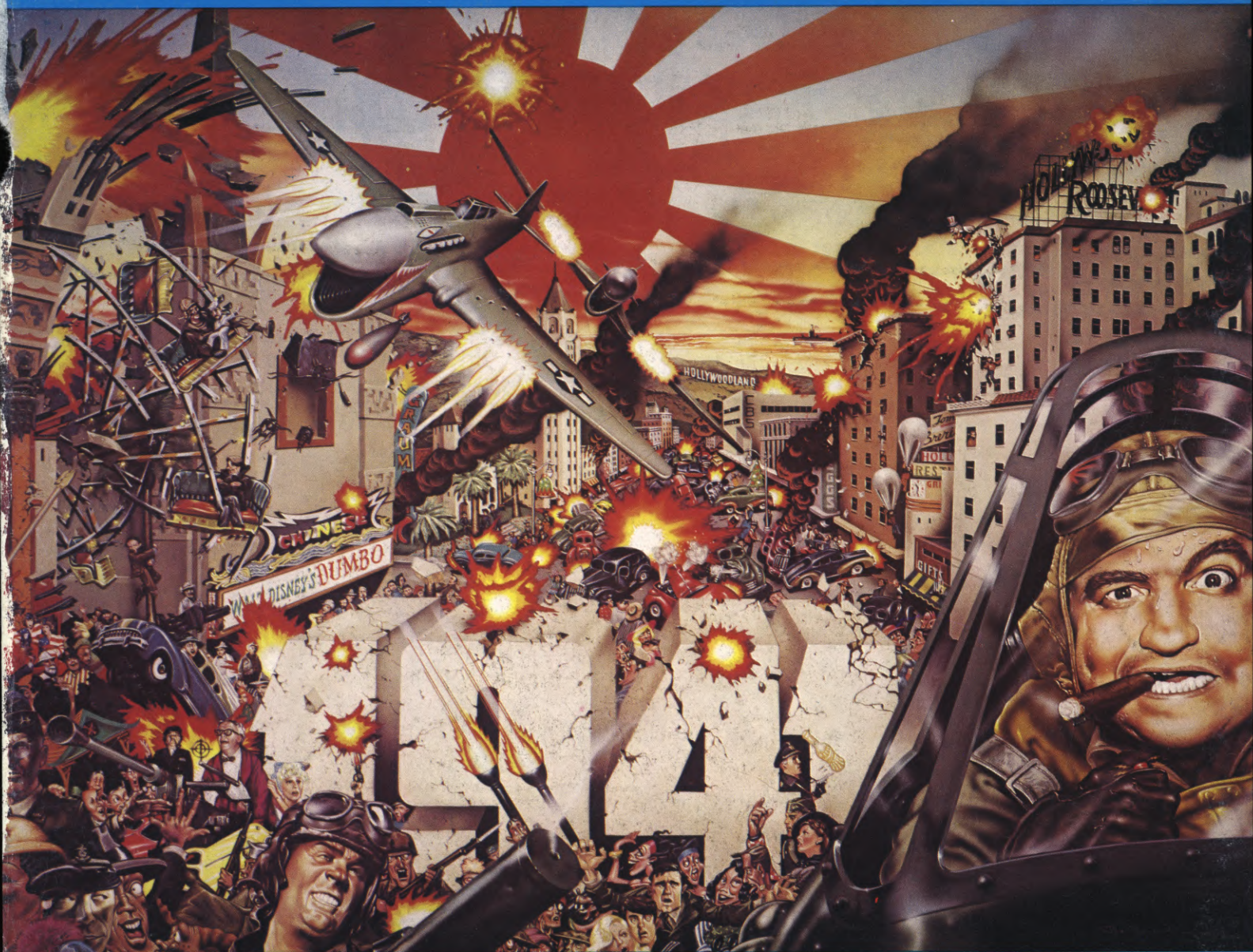


# American Cinematographer

International Journal of Motion Picture Photography and Production Techniques

DECEMBER 1979/\$1.50



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*The American Society of Cinematographers is not a labor union or a guild, but is an educational, cultural and professional organization. Membership is by invitation to those who are actively engaged as Directors of Photography and have demonstrated outstanding ability. Not all cinematographers can place the initials A.S.C. after their names. A.S.C. membership has become one of the highest honors that can be bestowed upon a professional cinematographer, a mark of prestige and distinction.*

**Herb A. Lightman**  
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DECEMBER 1979

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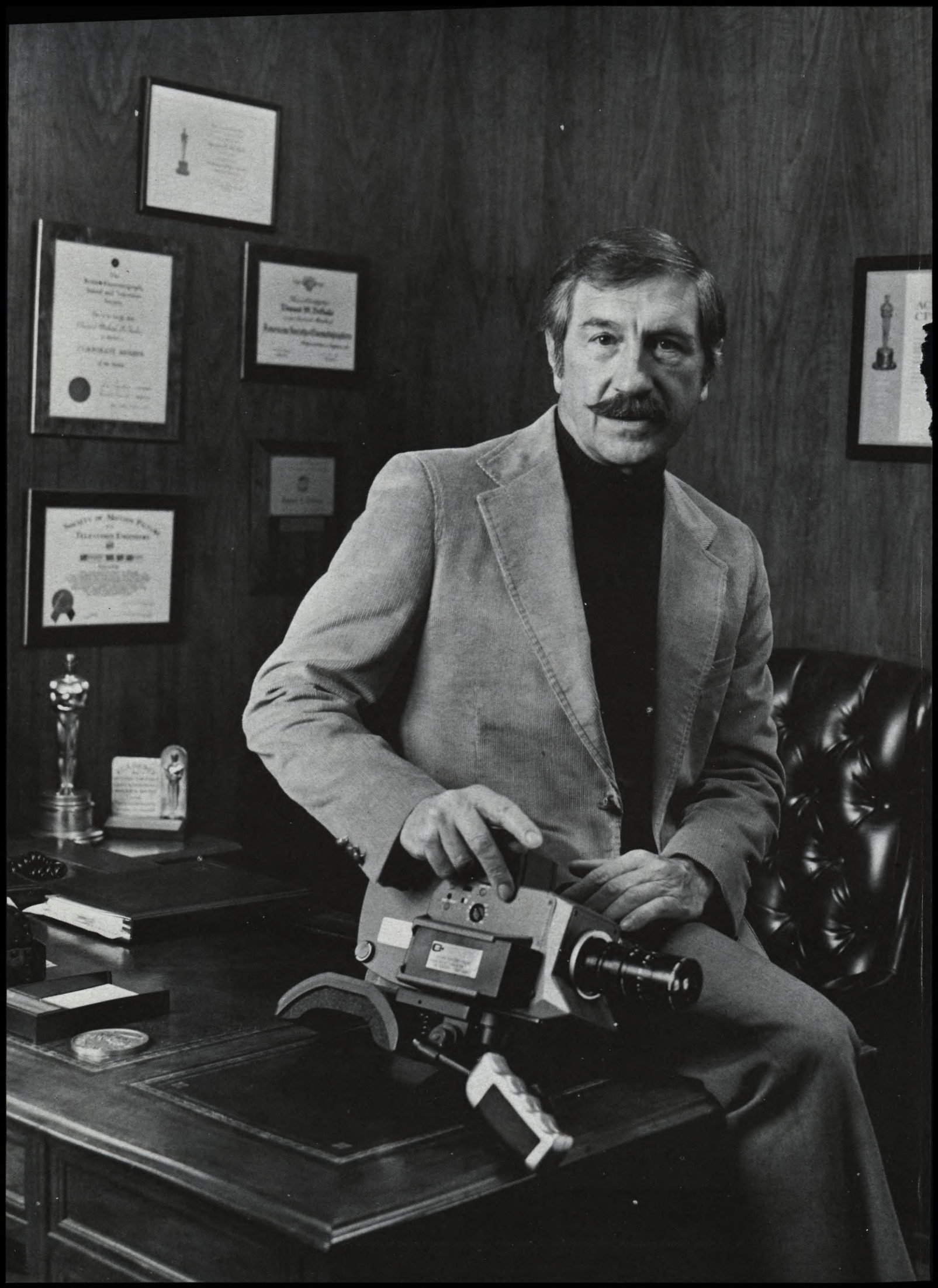
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Cinema Products Corporation

As our friends in the motion picture industry well know, concurrent with our development program for Steadicam — Cinema Products' Oscar-winning camera stabilizing system currently revolutionizing film and video production techniques all over the world — our design engineers took up another challenge, in many ways no less ambitious: GSMO.

Our aim was to provide the industry with a high-quality, sophisticated 16mm double system sound camera that would combine the basic design innovation pioneered by Eclair, namely, the quick-change cassette-type coaxial magazine, with Cinema Products' own innovative design contributions: the latest in crystal-controlled drive circuitry, on-board lightweight plug-in battery, studio-silent operation coupled with rugged modular construction that reduces downtime to a minimum, etc., etc.

And, of course, one of our major goals was to bring the GSMO in at roughly half the cost of sophisticated European imports such as the Arri 16SR and the Eclair ACL.

There are no shortcuts to design excellence. And living up to our own stringent standards was not easy.

GSMO took four years of painstaking research and development.

Plus a full year of extensive testing.

Our CP engineering staff carefully evaluated all inputs from the field, and made the required design changes.

The final result is that all of our design goals for GSMO have been successfully achieved. Some, beyond our original expectations!

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the world on actual filming assignments under the most rigorous field conditions.

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And GSMO is, unquestionably, the most *affordable* camera of its class available on the market today. Fully supported by Cinema Products' acclaimed after-sales factory backup, and a worldwide network of dealer service stations.

GSMO rental and demonstration cameras are now available for your evaluation at Cinema Products dealer showrooms all over the world. And customer back orders are being filled as rapidly as possible.

I urge you to visit your local CP dealer soon and check out the GSMO for yourself.

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Compare it — feature for feature, option for option, and price for price — against eminent European cameras such as the Arri 16SR, the Eclair ACL, and the Aaton 7 LTR.

I am sure you will agree that GSMO was well worth our effort. And well worth your wait!

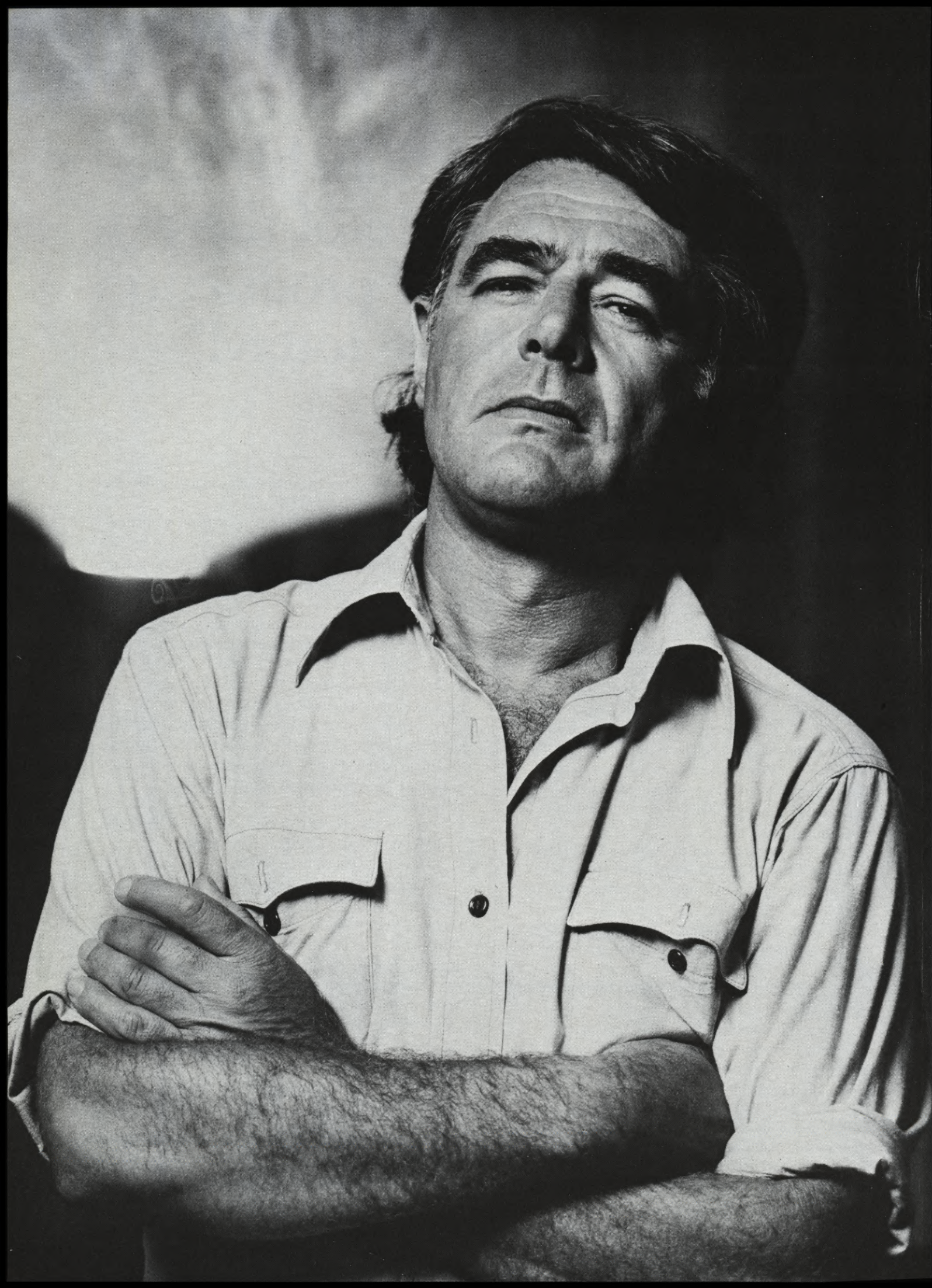


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# DONNER



*"Film is just in its infancy!"*

*Richard Donner, director of back-to-back winners The Omen and Superman, says that today's film, cameras and specialists give motion picture directors new powers, and suggests more thrills are on the way.*

"When I first saw the script for *The Omen* it was laden with cloven hoofs and covens and devil gods, and everything was quite obvious. I went to Alan Ladd, Jr. with it and told him I only had until Monday to make a decision. He called me Sunday at midnight and said, 'What are you going to do different?' I said, 'Eliminate the obvious.' He said, 'Call your producer, you've got a deal.'

"*Superman* had to fly. If the audience didn't believe that, they wouldn't believe anything. I had one of the greatest aggregations of technical artists ever assembled. We had special effects, miniature effects, matte artists, front projection experts, rear projection experts, the flying teams. At first someone would say, 'Listen, that's not my department.' At that point I began to break down the departments. I said, 'If I ever hear another man say it's not my

department, he's fired.' It ended up with the most homogenous group I ever worked with. There were no lines, no barriers. Everybody crossed over and worked out of his specialty when he needed to.

"Along the way I was brought a new front projection filming system that was still experimental, and I scraped up some money to develop it. The actor was on a rigid pole and the camera flew. Until then, front projection units weighed about a ton. This one weighed 35 pounds. Instead of a heavy arc, it used incandescent light.

"To make up for the reduced light, we pushed our Eastman color negative II film 5247 one or two stops. Six months later people in the screening room cried with relief because I finally bought a shot of a man flying, really flying.

"The amazing thing about 5247 film is that we could go from a special effects incandescent-lit flying shot where the film was pushed two stops, to an outside shot in Canada where we had beautiful daylight; and between the genius of the cinematographer (the late Geoffrey Unsworth), the work at the

labs and the capability of the film, it all matches. When you put the two pieces of film together, you don't notice the difference.

"When you think of the developments of the past few years, you feel very confident. That front projection camera, for example—we're now able to make a 100 to 1 zoom with it. We've got film stock that can be exposed at 100 or 400, whatever the scene requires. We've got specialists who can give us any effect we ask for. Good things are coming. Film is just in its infancy."

*If you would like to receive our publication for filmmakers, "Kodak Professional Forum," write Eastman Kodak Company, Dept. 640, 343 State Street, Rochester, NY 14650.*



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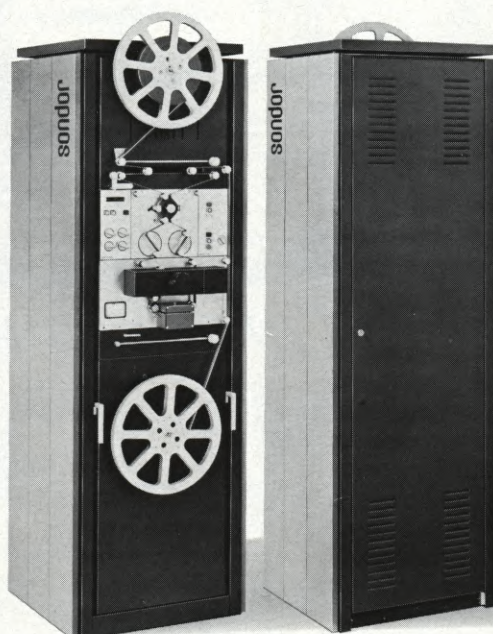
*Kodak...Official motion picture consultant to the 1980 Olympic Winter Games.*



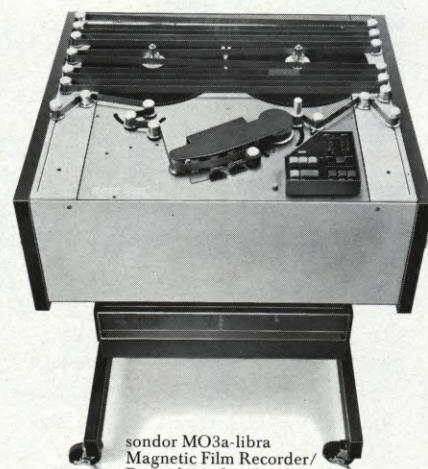
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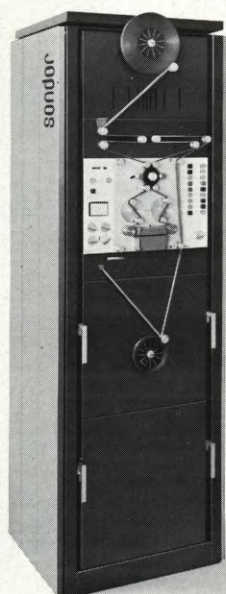
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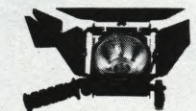
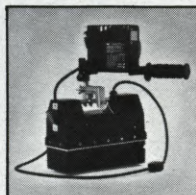
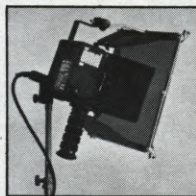
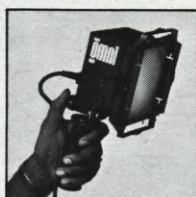
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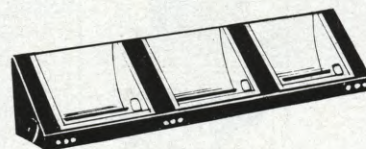
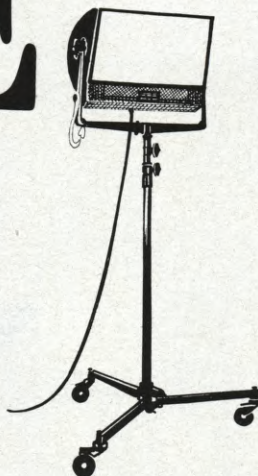
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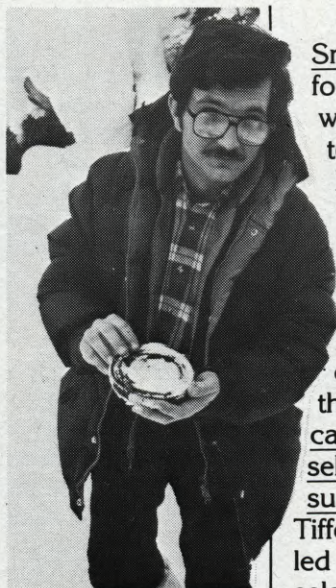




Cameraman Robert Reece on camera, director Harold Tichenor foreground. Sno-Cat, Glacier National Park, Canada.

## **"This Tiffen filter fell into the steel tracks of a snowmobile churning at 20 mph. It was remounted and shooting continued."**

Harold Lee Tichenor, Director "The Snow War"



Director Harold Tichenor holding ring/hood

Photos: Trig Singer

"Our recent film, The Snow War, produced by Cinetel for Parks Canada, is concerned with the avalanche control team in Rogers Pass in Glacier National Park.

"The production was carried out under incredibly adverse conditions: extremes of cold, wind and precipitation. Our selection of equipment was made with this in mind. For all four cameras, we exclusively selected Tiffen filters, rings and sunshades. Our experience with Tiffen filters on past productions led us to this choice. This selection proved sound throughout the rigours of the production.

"On one occasion, we were shooting a scene from a Sno-Cat—a powerful, overgrown snowmobile capable of hauling a ton of men and gear up incredible alpine terrain.

"Inadvertently, the 85 filter, ring and collapsible sunshade were dropped into the steel tracks of the Sno-Cat, churning at 20 miles per hour. Behind, a sledge and four skiers were being towed.

"After stopping and a search, the Tiffen filter assembly was recovered and cleaned of snow. The total damage involved was several small abrasions to the filter ring's finish caused by the steel edges of skis skiing over it.

"The assembly was remounted and shooting continued."



Harold Lee Tichenor, Director  
"The Snow War"

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# THE BOOKSHELF

By GEORGE L. GEORGE

## GENRES AND TECHNIQUES

Issued by Eastman Kodak, **THE WORLD OF ANIMATION** surveys the conception to completion process of animated filmmaking. Stressing creativity and technique, Raul da Silva describes in detail the successive stages of production, budgeting, personnel, uses of animation, and employment tips (Publication S-35, \$7.95).

Walt Disney's **SNOW WHITE AND THE SEVEN DWARFS** is published in a superb large format volume with 400 full-color and b&w drawings from the 1937 movie. It includes the fairy tale itself, plus an informative section on the film's production and its creative artists (Viking \$29.95).

A unique collection of stills and articles on the art and evolution of film appear in "IMAGE", culled from the magazine of that name issued by the International Museum of Photography in Rochester. Edited by Marshall Deutelbaum, the book provides an accurate and often unexpected outlook on the silent film era (Dover \$8.95).

In **GONE HOLLYWOOD**, Christopher Finch and Linda Rosenkrantz recreate facets of life in the movie colony of yesterday. Lively and fact-filled, the book highlights a multitude of subjects, such as love, marriage and divorce, politics, publicity the cameramen's contribution, sneak previews, salaries and gambling (Doubleday \$14.95).

★ ★ ★

## REFERENCE AND RESEARCH

Now in its 30th year of publication, **SCREEN WORLD 1979** is the established statistical and pictorial record, assembled by John Willis, of all films shown in the USA during the previous year. Hundreds of stills illustrate this comprehensive survey, providing complete production credits and many other relevant factual items (Crown \$15.95).

An expanded edition of John Mercer's **GLOSSARY OF FILM TERMS** offers an exhaustive and expert lexicon of some 2500 words and phrases currently used in movie production (University Film Ass'n, Temple U., Philadelphia, PA 19122; \$5).

In **CELLULOID VAMPIRES**, a survey of the genre from 1897 to the present has been undertaken by Michael J. Murphy.



Over 500 films are reviewed in historic context, with detailed story lines and production credits. A bibliography further adds to the book's usefulness to both scholars and buffs (Pieirian Press \$14.95).

A notable new collection of screenplays of vintage Warner Bros. films is launched by the U. of Wisconsin Press. *THE JAZZ SINGER* (Robert L. Carrington, ed.), *MYSTERY OF THE WAX MUSEUM* (Richard Koszarski) and *THE TREASURE OF THE SIERRA MADRE* (James Naremore) are the first of 35 announced volumes. All reproduce the film as shot, with extensive data on its literary origins, full production credits, and an editorial assessment (\$12.50/4.95 ea.).

Edited by Richard J. Anobile, *ALIEN* is the script (or movie novel, as they call it) of the recent space travel film, containing over 1000 full-color frame blowups with captions from the soundtrack (Avon \$8.95).

Indispensable for any film and tape work in the East, the *NEW YORK PRODUCTION MANUAL 1979-80* is a substantial, accurate and thoroughgoing compilation of all data necessary for shooting in New York City and State, New Jersey, Connecticut, Massachusetts, Pennsylvania and Vermont. Assembled by Samuel Bension, it covers all production procedures and regulations, local contacts, union and guild rates, facilities, rentals and other requirements, in a conveniently organized guide (N.Y. Production Manual, 1 Washington Sq. Village, NYC 10012; \$30).

Covering film, television and radio for talent, production and advertising services in the Southwest, *WHITMARK DIRECTORY 1979-80*, edited by Betty Whitlock and Margaret Murrell, is a comprehensive sourcebook for valuable information on Arkansas, Arizona, Colorado, Louisiana, New Mexico, Oklahoma and Texas (Whitmark, 4120 Main St., Dallas, TX 75226; \$37.50).

More modest but equally useful, *CU DIRECTORY* encompasses Chicago's audio-visual communications, facilities and services. Performers, producers, ancillary accommodations, labor org., are conveniently listed in this standard guide (CU Directory, 203 N. Wabash Ave., Chicago, IL 60601; \$5).

★ ★ ★

#### CELEBRITY ROW

Ralph Rosenblum, who gained well deserved fame as film editor of Woody Allen's movies after performing similar duties for William Friedkin, Sidney Lumet

and Mel Brooks, has written a revealing book about his experiences, *WHEN THE SHOOTING STOPS*. The film editor's craft, his often adversary relations with the director, his frustrations and rewards are described with honesty and professionalism in this informative and entertaining volume (Viking \$12.95).

In *FELLINI: AN INTIMATE PORTRAIT*, Liliana Betti reveals with uncommon insight the intense personality of the director, whose assistant she has been for 20 years. Her affectionate appraisal does not avoid criticism, but her legitimate admiration is abundantly motivated (Little, Brown \$9.95).

John Ford's grandson, Dan Ford uses reminiscences and family records in *PAPPY: THE LIFE OF JOHN FORD*. But his recollections appear modest in the light of his understandable reliance on Ford's otherwise richly documented biographical data (Prentice-Hall \$12.95).

The Korda brothers—director/producer Alexander, director Zoltan and art director Vincent—are intimately portrayed in *CHARMED LIVES*, a fascinating biography by Michael Korda, Vincent's son. The author's literary skill, his witty and delightful observations, his total recall of people and events add up to an exceptionally captivating memoir (Random House \$15).

Tunesmith Benny Green, in *FRED ASTAIRE*, combines his familiarity with music and his exploration of film to produce a lively appraisal of the performer's career, a large format, well researched and lavishly illustrated volume (Book-thrift/Exeter \$9.98).

In *NOEL COWARD AND HIS FRIENDS*, a treasure trove of memorabilia has been recovered from the entertainer's archives by Cole Lesley, Graham Payn and Sheridan Morley. Evidences of Coward's multifaceted talent—actor, playwright, composer and lyricist, painter and poet—are brought out in this engrossing volume (Morrow \$20).

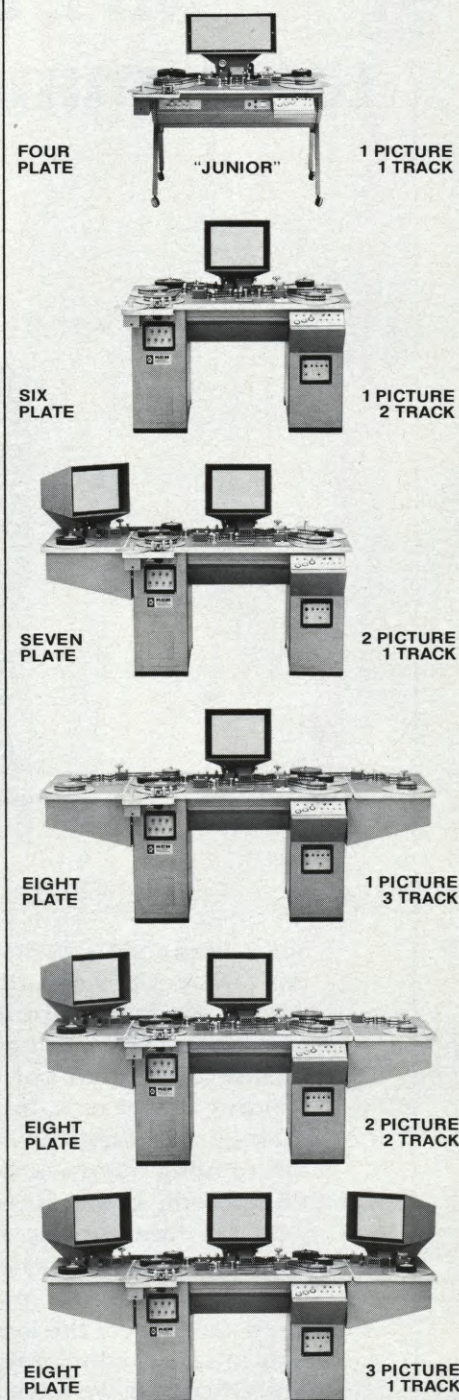
Ivan Tors, the creator of many popular animal films (*Flipper*, *Daktari*, *Gentle Ben*, etc.), relates his trips to Africa in *MY LIFE IN THE WILD*, an exciting adventure saga in the search for movie material (Houghton Mifflin \$10.95).

Seeking to offset the tensions of his acting career, Alan Arkin took up yoga and recounts in *HALFWAY THROUGH THE DOOR* how it enabled him to achieve peace of mind (Harper & Row \$6.95).

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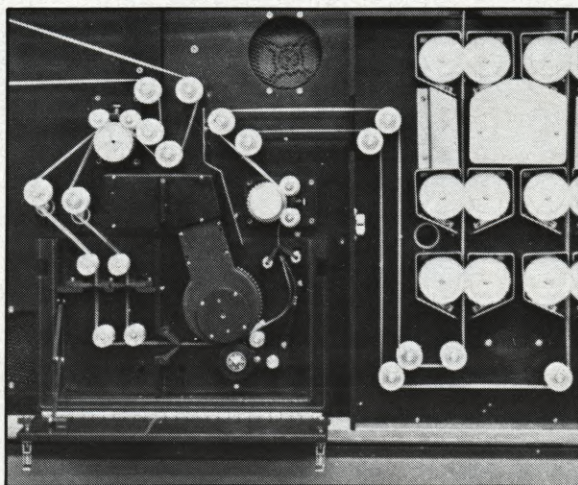
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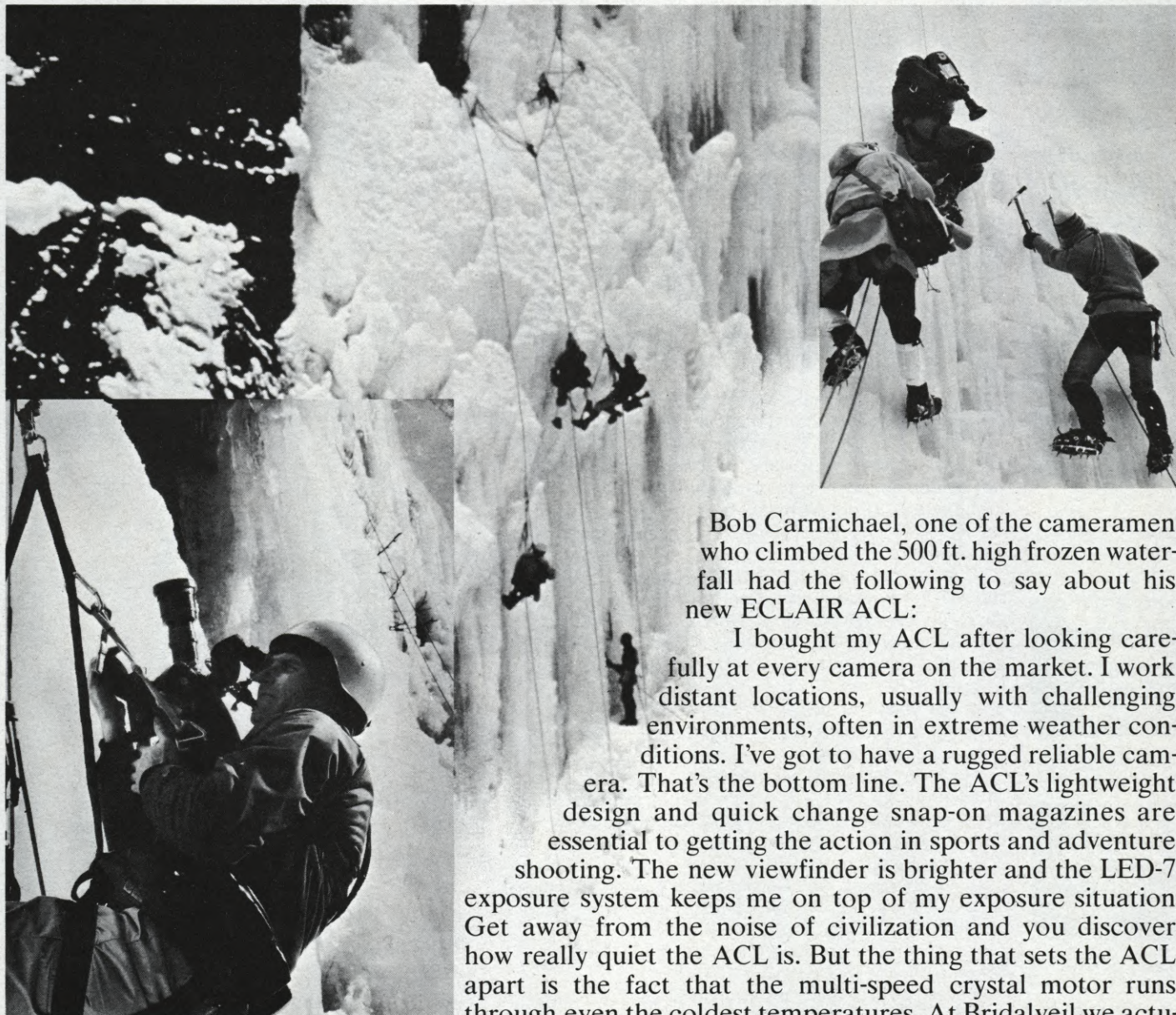


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# ECLAIR ACL: the rugged reliable quiet camera

ABC Sports selected three cameramen to shoot  
Bridalveil Falls: All three owned ECLAIR ACL's.



Bob Carmichael, one of the cameramen who climbed the 500 ft. high frozen waterfall had the following to say about his new ECLAIR ACL:

I bought my ACL after looking carefully at every camera on the market. I work distant locations, usually with challenging environments, often in extreme weather conditions. I've got to have a rugged reliable camera. That's the bottom line. The ACL's lightweight design and quick change snap-on magazines are essential to getting the action in sports and adventure shooting. The new viewfinder is brighter and the LED-7 exposure system keeps me on top of my exposure situation. Get away from the noise of civilization and you discover how really quiet the ACL is. But the thing that sets the ACL apart is the fact that the multi-speed crystal motor runs through even the coldest temperatures. At Bridalveil we actually got ice build-up on the camera body and it continued to function perfectly. ECLAIR ACL is now so well proven that it really is an industry standard.

ABC Sports Bridalveil film crew:  
cameraman/director—Scott Ransom  
cameramen—Bob Carmichael, Greg Lowe  
Soundman—Peter Palafian

*ECLAIR ACL: the dependable quiet one*

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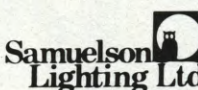
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# Many New Underwater

In conjunction with Al Giddings, the famous American underwater cameraman who designed and developed the special underwater camera housings used on THE DEEP, we have taken delivery of three of his very sophisticated 35mm housings to add to our hire fleet.

One will be based permanently in London, another with SFS Australia and the third will 'float' (pardon the pun), taking a dive wherever in the world the need arises.

The Al Giddings housings take 35 mm Arriflex IIC cameras, weigh 75 lbs. out of the water, have a positive buoyancy of approximately 8 oz. underwater and are calculated to be good for a depth of up to 300 ft.

Refinements include reflex viewing, external controls for focus and aperture, windows to view the camera tachometer, footage counter and lens calibrations, a system of automatic internal illumination which switches on when the housing is tilted side-ways and a red warning light which goes on should any water be detected inside the housing.

Most important of all, the Al Giddings housings have hemispherical or 'domed' front ports, absolutely essential refinements for distortion free underwater filming.

It is, of course, an elementary fact of life when filming underwater that the wider the lens angle the less muck there is in the water between camera and subject but that to use very wide angle lenses without a domed port is to produce very severe pin-cushion distortion. With these housings and their domed front ports, flat, distortion free pictures are possible.

One of our valued and trusted clients recently shot an underwater explosion with our IDI Eclair ACL underwater housing. Unfortunately he forgot to allow for the fact that a given amount of explosive has a much greater effect underwater than it does in the air and so managed to destruct not only the object of the exercise but the underwater housing, the camera inside it and the underwater exposure meter as well!

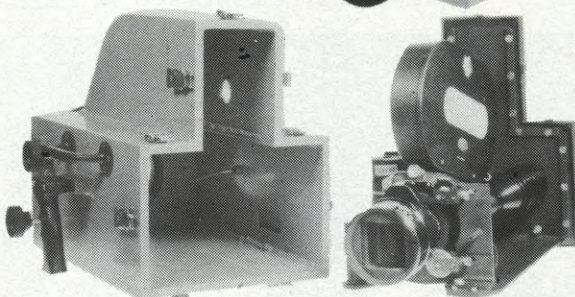
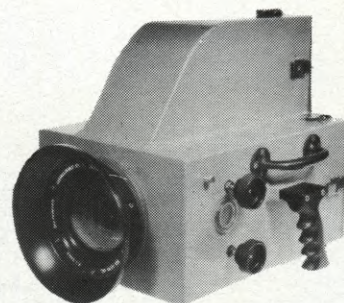
However, Image Devices brought another housing to London for Film '79, which we bought off their stand as a replacement. Like Al Giddings 35 mm housings, the IDI 16 mm housing also has a specially designed hemispherical shaped or 'domed' front port in this case for Angenieux 5.9 and 10 mm lenses. The housing has facilities for both reflex and outside viewfinding, an external control for aperture with either lens and provision for attaching a Sekonic underwater exposure meter.

To satisfy Arriflex aficionados we have also bought an Arriflex '16 SR' underwater housing. Among the advantages for this particular underwater housing is the fact that it can be fitted with a wide range of zoom and fixed focal length lenses with provision for external control of focus, zoom and aperture. We also like the idea of the reflex viewfinder eyepiece being cocked upwards at an angle of 45°, much more comfortable for a cameraman in a swimming position.

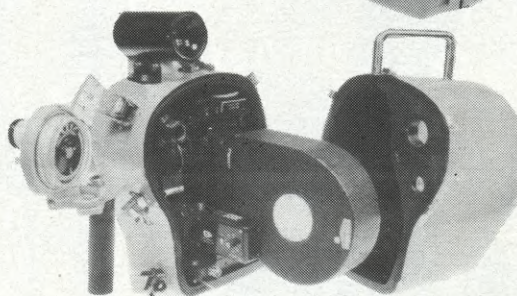
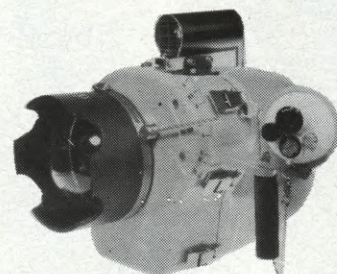
Incidentally, we also have two underwater battery lights available which may be fixed to any housing.

## Housings

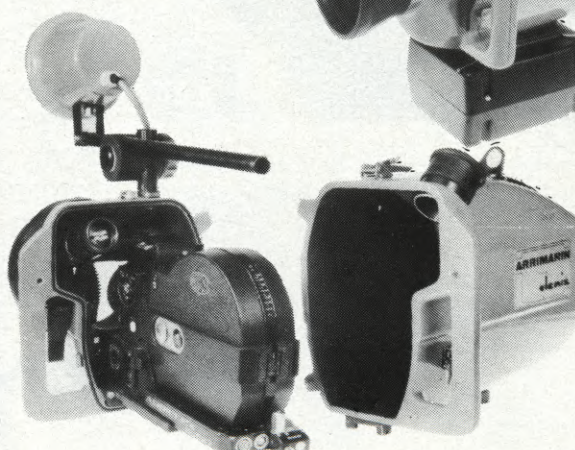
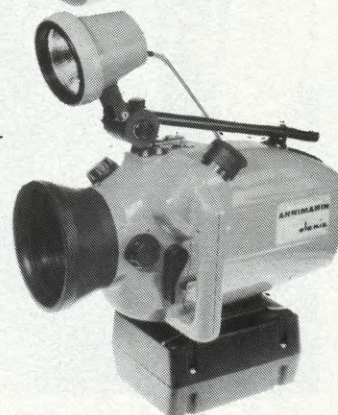
Al Giddings underwater housing with Panavision Arri and anamorphic lens fitted.



IDI underwater housing with Eclair ACL fitted

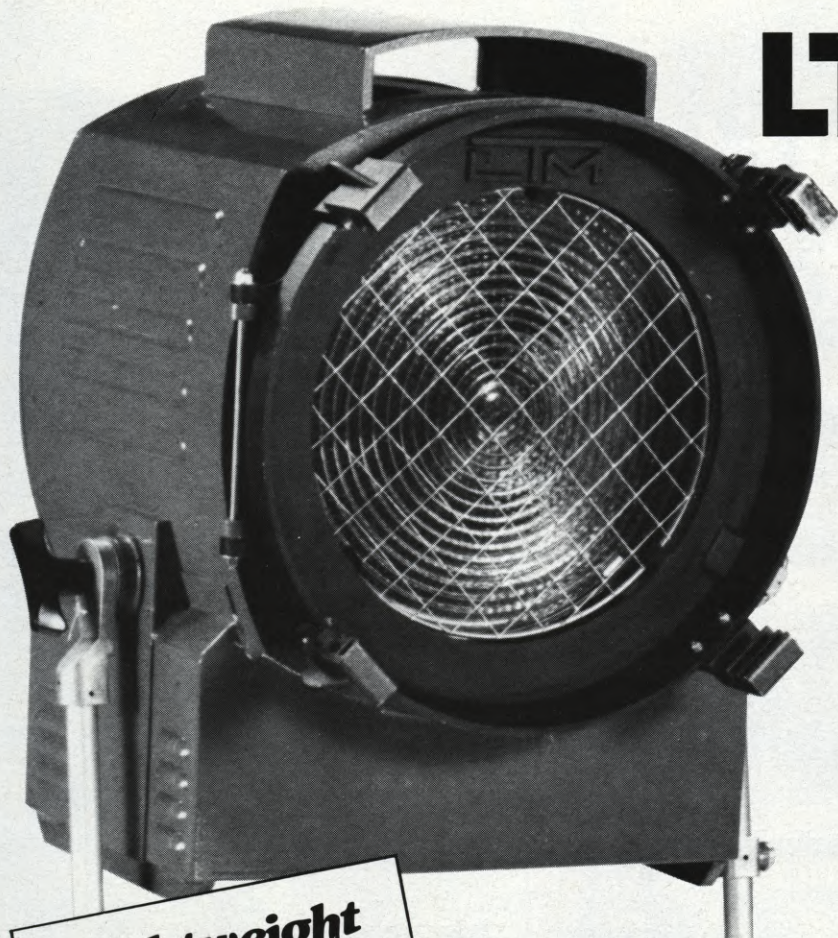


Arri 16SR type underwater housing



EUROPEAN MANAGING ASSOCIATES FOR **PANAVISION** Corporation of California Ltd





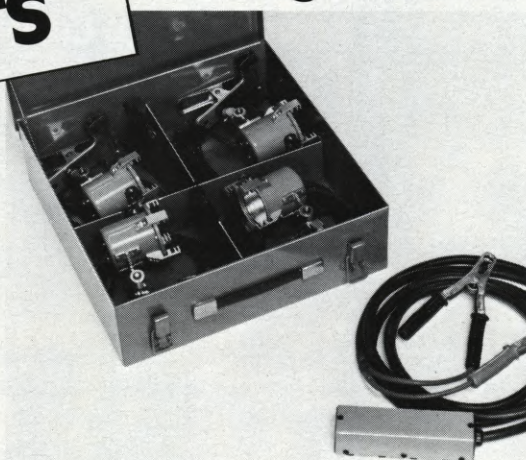
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### **MINI PORTABLE CAR KIT 504M/12**

Especially made for use in motor vehicles, this miniature unit includes 4 "Minette" lights mounted on gator grip. Small, compact and lightweight, it is easily dissimulated, has a very high light output, a complete range of accessories and a direct connection to 12V car batteries.



### **LTM REPORTER KIT 503M**

Ideal for news applications, this handheld minilight is small, lightweight and includes a 30V battery with incorporated charger. The fixture is focusable, lightswitch as well as focusing are actuated singlehanded and it has excellent light output.

***The Award-winning choice of Award Winners!***



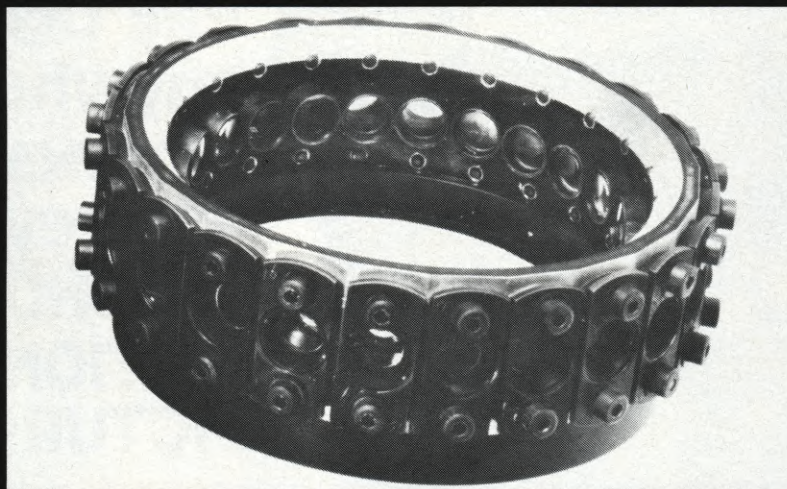
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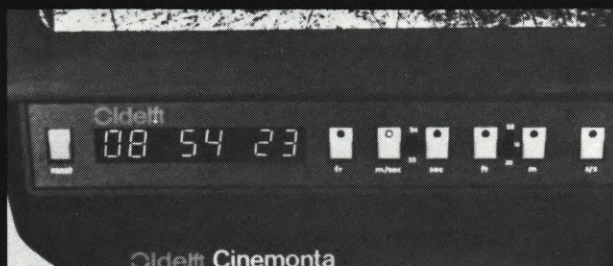
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and excellent shadow detail even while viewing in normal room light. No flicker! There's nothing like it.



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Oldelft is first to introduce a Computer counter for editing tables. Touch a button and the bright LED readout instantly displays film length or running time. S8, 16 or 35mm at 24 or 25 fps in feet and frames, metres and decimetres. Multiduty!



## The CINEMONTA Editing Console.

The superior Film Editing Table that does the work. All the work for which it was intended. So you can be as creative as you intended. CINEMONTA is the most technically advanced console in the world. Efficiently designed. Reliable. Even imaginative. See for yourself.

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### memo

Ned-  
Storyboards complete.  
Altogether, about 2,000  
feet of MOS.  
Don't take any chances.  
CHEM-TONE low-light scenes  
...maybe even entire film.  
TVC came through with  
flying colors last time.  
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TVC is a quality motion picture laboratory  
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A film image from Hitchcock's « Marnie »

Collection Cahiers du Cinéma

**Conjecture...** If film had been invented *after* video. Everyone would have heaved a great sigh of relief, finding at last the assurance of truly

**reliable** cameras and high quality originals.

**Facts...** It is clear that video is *the* answer for the innumerable programs which are to be exploited in the present and the immediate future. However, if the people who make video programs aspire to selling them as films for distribution in the years to come, then they must take into account the **rapid progress** in broadcasting techniques and equipment.

In the next five years, **high bandwidth satellite transmission** allowing unprecedented definition on the screen will come into its own; NHK in Japan is already developing such systems. **Large video screens** with improved dynamic range are on the way up too. With these two major technological advances, video programs made today will simply not contain enough information to be utilised tomorrow.

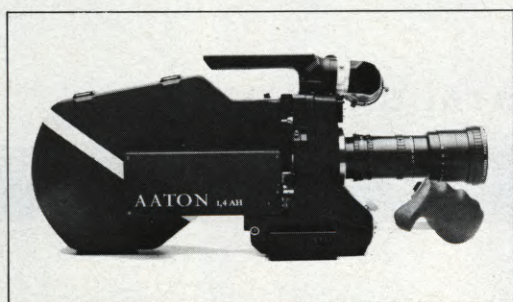


**Certitude...** The film medium in terms not only of its technology, but specially of the quantity of information transported, is a **wise choice for the future**. More than ever, film will serve as a stable base, supplying video technology with **high quality originals**.



*A TV image from the same film*

**Advertising...** The enormous information gathering potential of the three layered film medium deserves **the excellence of a fine camera**. A fine camera is vibrationless, and therefore **quiet**, eliminating micro-blurring of the successive images — the Aaton 7 LTR 16 mm camera can go down as far as 23 dB. A fine camera **positions the film perfectly** in relation to the lens, both vertically, and *in depth* — the Aaton 7 LTR is now a reference for film positioning and image crispness. A wise choice.



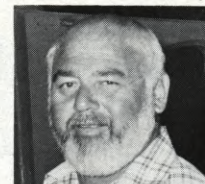
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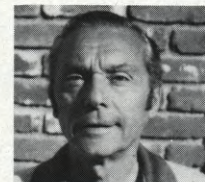


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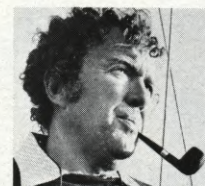
**Gerald P. Finnerman, A.S.C.**  
"Cine-Pro leaves nothing to chance.  
They follow through on every detail . . .  
no slip-ups or excuses."  
*Currently filming "From Here To Eternity"*



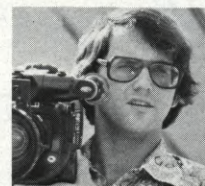
**Sy Hoffberg**  
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good people to deal with. You can count  
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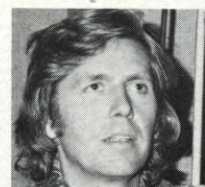
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"... you get exactly what you  
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Porcello always treats you like Number One."  
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"... Cine-Pro service is one of the  
few things you can count on with  
certainty these days."  
*Currently filming "The Attic"*



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"... I know I can be sure of  
the best possible service."  
*Currently filming "Chisholm"*



**Robert Caramico**  
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appreciate service  
like Cine-Pro gives  
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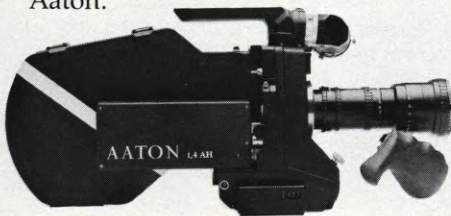
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# Zellan Enterprises: "Exclusively Aäton."

The 16mm cinematographer's alphabet. More and more these days, "A" stands for *Aäton*...and "Z" for Zellan Enterprises.

Sure, Aäton also chose some of the country's major dealers — Camera Mart, Victor Duncan, Ferco and Alan Gordon — to distribute the world's most advanced 16mm camera. But Zellan Enterprises has lots more direct experience with the astonishing Aäton.



Of the 28 LTR 16mm Aäton sales concluded in this country, Les Zellan has been personally instrumental in making 26 (some while on the staff of another distributor). He discovered the special features which have made the Aäton the number one choice among European cameramen. And began introducing the cameras to such American cinematographers as "60 Minutes" regulars Greg Cooke, Chuck Levey and Bob Peterson:

Like them, you owe it to yourself to consider the Aäton when you're shopping for a 16mm camera. And when you do, why not come to the only distributor who fea-

tures the Aäton *exclusively*? That's right. Zellan Enterprises had such faith in Aäton's engineering and design that they bet their whole future on the LTR. And that's why Aäton is the only product Zellan distributes.

You can also depend on Aäton's ingenious French *nouveau technologie* that clearly rivals the Arriflex.

All backed by Zellan Enterprises sales and service. It includes the complete product line: camera bodies, viewfinders, lens adaptors, film magazines, battery packs, unrivaled video monitoring system and revolutionary time-coding device. With all service and repair by a factory-trained expert. And Aäton's exclusive "Blue Body Insurance Policy." If your Aäton should ever need emergency repair, you'll have one of their specially designated replacements to shoot with while yours is in the shop.

So when you're shopping for an Aäton, come to Zellan Enterprises — the "exclusively Aäton" dealer.

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**Aäton to Zellan.  
All a 16mm cameraman needs to know.**



# BEHIND THE SCENES OF

# 1941

A hilarious comedy of post-Pearl Harbor madness, filmed on an epic scale, turns out to be an incredible exercise in filmmaking

Steven Spielberg, the brilliant young filmmaker whose *JAWS* and *CLOSE ENCOUNTERS OF THE THIRD KIND* rank among the most popular movies of all time, has now created "1941", his first venture in the comedy field. He calls it "an action misadventure".

Starring are: Dan Aykroyd, Ned Beatty, John Belushi, Lorraine Gary, Murray Hamilton, Christopher Lee, Tim Matheson, Toshiro Mifune, Warren Oates, Robert Stack, and Treat Williams.

The challenging large-scale production is set in Los Angeles in the panic-stricken days following the attack on Pearl Harbor. The multi-charactered film is based on "The Great Los Angeles Air Raid" and other bizarre events which actually occurred in the early days of World War II.

But, Spielberg points out, "1941" is a comedy, not a war picture." He calls the story "history as it might have happened."

Beautifully photographed and costumed, lavishly mounted and designed, and thoroughly researched, this extraordinary film offers its own screwball "explanation" of the hysterical air raid. Build-

ing to this event, the film tells several related stories that intertwine and unravel on the fateful and frantic day of December 13th.

The panoramic movie features a Japanese invasion force poised off the California coast, based on the real Japanese sub that shelled Santa Barbara.

A scintillating replica of Hollywood Boulevard during the Christmas season was re-created at the Burbank Studios. Into this festive atmosphere, Spielberg commanded hundreds of extras and stunt people for a massive riot and plane crash. The sequence involves Army, Navy, and Marine troops, and civilians, including "Pachukos" in flamboyant Zoot Suits.

Other scenes were filmed at a Long Beach airport, with restored World War II planes; inside a former theatre converted into the colorful Hollywood USO for a scintillating Jitterbug Contest; Stage 30 at MGM Studios, where a huge water tank built for Esther Williams floated an 80-foot Japanese submarine; and the marbled and tapestried interior of the ornate Los Angeles Theatre, built in 1928.

On an oceanside cliff in Malibu, the filmmakers constructed a lovely two-story house and then demolished it for a spectacular climactic sight gag.

Stunning replicas of Hollywood Blvd. and Ocean Park are two of the largest miniatures of this size and detail ever created.

The film's constant stream of action and sight gags was accomplished with the skills of one of the largest gatherings of stunt people ever employed on a film.

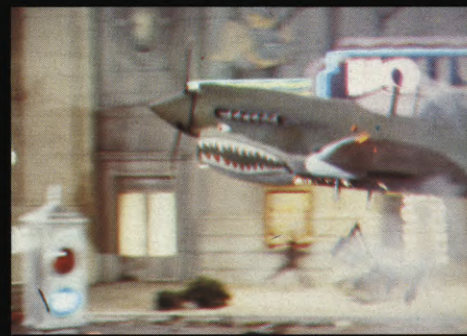
The special effects in "1941" were created in the old-fashioned style—in front of the camera, rather than in optical laboratories.

The production of "1941" marks the most extensive use yet of The LOUMA Crane, a modular, hand-portable camera platform that gives unprecedented flexibility and kinetic energy to camera movements. The ingenious, video-monitored device was invented during their military service by Jean-Marie Lavalou and Alain Maseron to solve logistical problems of making a French training film inside a submarine. Maseron and his LOUMA crew were present during the filming of "1941". ■

"1941" is a Universal Pictures and Columbia Pictures presentation of an A-Team Production of a Steven Spielberg Film, but despite that involved credit, it is a motion picture designed to provide roaring entertainment to mass audiences. It is not a war film, but takes place shortly after Pearl Harbor, when the West Coast was a bit paranoid about the possibility of a Japanese invasion. (BELOW) At a USO jitterbug contest, soldiers and sailors square off, then mix it up in a free-for-all.







In production for almost two years, "1941", even though it is a comedy, turned out to be one of the technically most intricate films ever made. An almost wall-to-wall succession of sight gags, it brought into play a vast smorgasbord of mechanical special effects, plus some of the most ambitious Miniatures sequences ever filmed. Directed by Steven Spielberg and photographed by William A. Fraker, ASC, it is a complete course in how to make spectacular things happen on the screen.





# PHOTOGRAPHING '1941'

A full year of his career went into photographing this zany romp, but the cinematographer deems it a rare and challenging experience, plus an opportunity to get some stunning effects on a vast scale

William A. Fraker, ASC, who served as Director of Photography on "1941", is one of Hollywood's most distinguished cinematographers. His outstanding camera-work received Academy Award nominations for HEAVEN CAN WAIT and LOOKING FOR MR. GOODBAR. His other films as Director of Photography include ONE FLEW OVER THE CUCKOO'S NEST, ROSEMARY'S BABY, BULLITT, EXORCIST II: THE HERETIC, THE FOX, DAY OF THE DOLPHIN and PAINT YOUR WAGON. He recently photographed HOLLYWOOD NIGHTS. Mr. Fraker also directed MONTE WALSH and REFLECTION OF FEAR.

Currently President of the American Society of Cinematographers, Mr. Fraker, at this writing, is in pre-production preparing to direct the LONE RANGER feature.

In the interview for *American Cinematographer* that follows, he discusses his one-year assignment as cinematographer on "1941":

**QUESTION: An epic film like "1941" is, by definition, replete with challenges. But would you care to talk about a few of the major ones that you, as a cinematographer, had to be concerned with?**

**FRAKER:** There were challenges on several levels. The overall challenge was the necessity for recreating the Pearl Harbor period, which meant combining miniatures, special effects and live action—and getting them all to work realistically together. Secondly, there

was the challenge of functioning within the budget. Being a responsible person, when you accept a picture, you also accept the budget that goes with it. If you're a professional you say, "Alright, I've got X-amount of dollars to do this." And you really try to the best of your ability to do it with X-amount of dollars. If, going in, you know that you're going to have to shoot the picture in 36 days, instead of 90 days, you accept the responsibility of shooting it in 36 days—which I've done. I've shot pictures for \$150,000 and I've shot pictures for \$35,000,000. The factors that expand the budget and make you shoot longer are usually things you have no control over, but you bust your fanny to meet the original responsibility.

**QUESTION: If you had to choose a single challenge on "1941" as being the most compelling, what would it be?**

**FRAKER:** The Number One challenge on this picture was trying to please Steven Spielberg—and that's a tremendous challenge, because the only thing he cares about is movies. There's nothing more important to him than the movie—any movie, and especially the movie he is doing. And I have to agree with him. That's been my whole life, movies. It's probably the most important thing in my life. The sad thing is that you get married, you have children, you buy cars and houses—all added responsibilities—but they really become secondary. The most

important thing, again, becomes the movie and if you go in with that attitude, that determination, then I think you can begin to work at somewhere near 90 percent to 100 percent of your capacity, and that's what is required in making a movie.

**QUESTION: Can you expatiate a bit on the challenge of pleasing Spielberg?**

**FRAKER:** As I said, the main challenge was trying to please Steven. He's a genius. I adore him. I would kill for him. I'm not saying that he's right all the time or that I agree with him all the time, but if you believe, as I do, that the director is the boss, then you have to say, "Okay, if that's what you want, that is what we are going to try to give you." That's my goal, my philosophy. But it isn't easy to give Steven what he wants, because he's the ultimate perfectionist. He's intelligent; he's articulate, and he loves what he's doing. You don't do eight hours a day with Steven—you do fourteen hours a day with Steven, and you're doing the 100-yard dash full-out for that fourteen hours. There is no relaxation. There is no time when Steven isn't prepared, knowing exactly what he wants. There is no time when Steven doesn't have an answer for any question you ask. There is no time when he can't make a decision. The kid is phenomenal. There's a whole group of "kids" like him. They're somewhat of a pain in the ass, but I adore them. What do they know about making pictures? Well, almost everything.

Section of a full-scale Japanese submarine rests in the tank on Stage 30 at MGM Studios where Esther Williams used to make her water pictures. Lighting this craft for night action, as it supposedly rises out of the water to attack Ocean Park, had to tie in exactly with previously filmed scenes involving a miniature of the submarine. Sets on a huge scale were the order of the day on "1941".



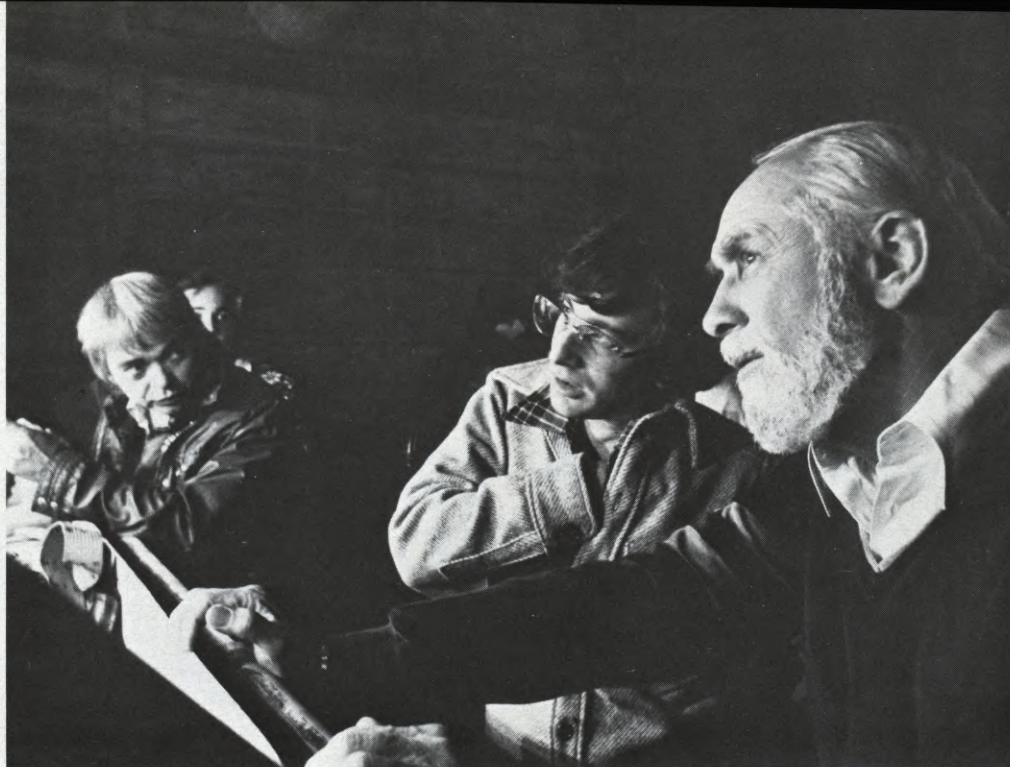


**QUESTION:** Did you approach "1941" with a preconceived idea of what the visual style, the "look" of the picture should be?

**FRAKER:** The look of a picture—and I've said it a million times—is inherent in the material. I can't tell what the picture is going to look like until we start shooting. I may have a tremendous idea for the visual style, but the director may have a completely opposite idea. Who is going to win? It depends upon who is the strongest. But seriously, we "discover" the look of a picture. We find out how it's going to be with all the elements added. That's especially true of a picture like "1941", with all of its special effects, miniatures, smoke and the required nostalgia. All are component parts that make up the look of the picture. In anywhere from the first five to ten days you find out what that look is, and you lock in on certain things. You say, "We love that. Let's go with that!" And you go with it. But once you're committed, you're committed. You have no chance to pull back or change it. You have to go with what you're doing. It's almost like an orgasm. You take off and say, "My God, that's sensational!" It's a magnificent moment in filmmaking. That's the way my whole approach to filmmaking is. It would be difficult for me to go in with a preconceived look like some cinematographers do. They are magnificent in what they do, but I can't do it that way. There is no challenge. There is no excitement. There is no "birth", so to speak. I like the discovery. I love the challenge of going into something unknown and coming up with something exciting. That's my whole philosophy.

**QUESTION:** How did you "discover" the photographic style you used in shooting "1941"?

**FRAKER:** That was very interesting. We discovered the style because we started by shooting miniatures on Stage 30 at MGM which has in it the tank where Esther Williams used to do all of her beautiful water pictures. Next to the tank was a miniature replica of Ocean Park, complete with sand, the beach and all the amusement rides. We started to shoot there because we knew that we would have to strike that miniature set in order to put the full-size Japanese submarine into the tank. That would mean bringing in heavy equipment—big booms and stuff like that. But now we had the miniature Ocean Park, with its ferris wheel, carousel, the pier going out into the ocean and, beyond the pier, the submarine rising in the background. Every-



Director of Photography William A. Fraker, ASC, views dailies with Director Steven Spielberg. These two share a mutual admiration society which began when Fraker was called in to photograph additional scenes for *CLOSE ENCOUNTERS OF THE THIRD KIND*. They work extremely well together, each standing just a bit in awe of the other's talent.

thing that we did in order to make that work began to determine how the whole rest of the picture would look.

**QUESTION:** What were some of the things you did?

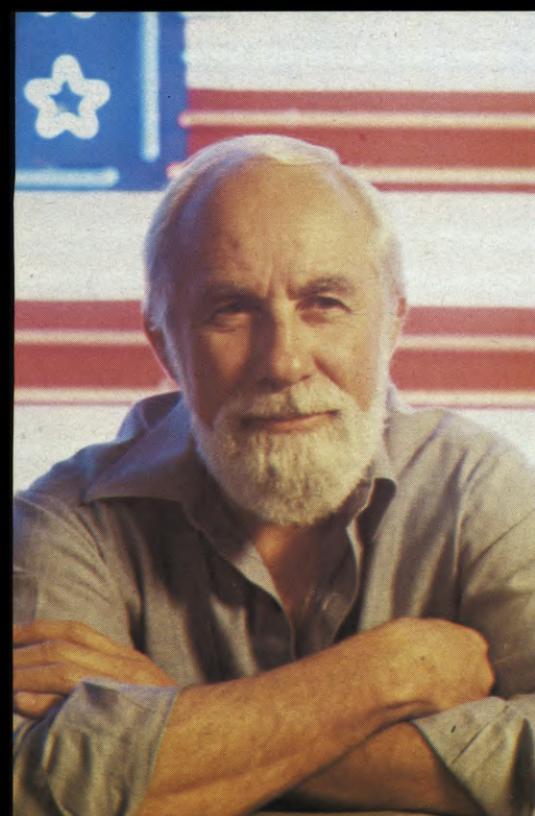
**FRAKER:** We started with the cyc background. They said, "Okay, Billy, this stuff is all supposed to be night shooting. How much black do we have to hang around the set?" I said, "First of all, we have a complete set and we're going to

shoot from the Park toward the submarine and from beyond the submarine back toward the Park. Therefore, we'll need 360 degrees of background cyc—but I'm not sure it has to be black." They said, "What do you mean?" I said, "Well, if it's black, then black goes into black and there will be no way to get separation between the cut-outs of the Hollywood Hills and the cyc. You need something to make that separation work. Going the other way, you need a horizon line out there—beyond the tank, beyond the wa-

A former neighborhood theater near the Burbank Studios was converted into a set for the gaudily lighted USO club that serves as the locale for a boisterously comic sequence. Fraker and Spielberg can be seen behind the camera in foreground.







A distinguished-looking gentleman, Fraker looks like he should be in front of the camera instead of behind it, although he doesn't do too badly back there.

ter." We eventually built a rising horizon, so that we could move it almost anywhere we wanted it. But how do you get an exposure on a black backing? You don't. So I talked to the Art Director and he had the cyc dyed a particular shade of gray which I selected. Then the gaffer took strip lights and put photofloods in them—blue for day and yellow for night—and placed them every 18 inches apart all around the stage, so that they would create a glow behind the cut-outs and onto the backing. The top of the backing would go absolutely black. Now what we had done was created a separation in the background to give us the first beginnings of our three-dimensional effect.

**QUESTION:** What determined the

scale to which the miniatures would be built?

**FRAKER:** We had discussed all of that months before and had decided that the miniatures would have to be built to a scale that would make it possible for us to light them realistically. In other words, the sets had to be big enough so that we could put a lamp inside a building and have a shaft of light coming out of a door or a window onto the street. That's what makes it begin to look real. Each building is individually lit. On the Hollywood Blvd. miniature set, for example, we dollyed right down the street with the camera on a miniature dolly following a miniature tank. You could see light coming through the cracks in the window blinds and under the miniature doors. There were pools of light where the streetlights were supposed to be, and things like that—all pre-designed and pre-rigged. But we added one more element to create a realistic blend line between the horizon and the water on Stage 30.

**QUESTION:** What was that?

**FRAKER:** We added smoke to make the marriage work. It gave the whole scene texture. There were strings of tiny lights going across between the flags and the runways on the pier and the filter package we used made those lights flare a little bit, while the smoke gave texture to the background. How much we lit the background depended upon how much texture we had. That's how we approached the miniatures—but it took about four months to get to that point. And we did tests—test upon test. I shoot tests to see what we can get away with, not what we can do. I know just about what we can do, because we've done it before—not once, but several times. When I have an idea I want to see why it won't work. My tests aren't for the purpose of having everybody come out applauding and hollering and saying, "My



Both Spielberg and Fraker allowed the visual style of "1941" to evolve out of the subject matter—in this case, a lot of smoke, but no diffusion.

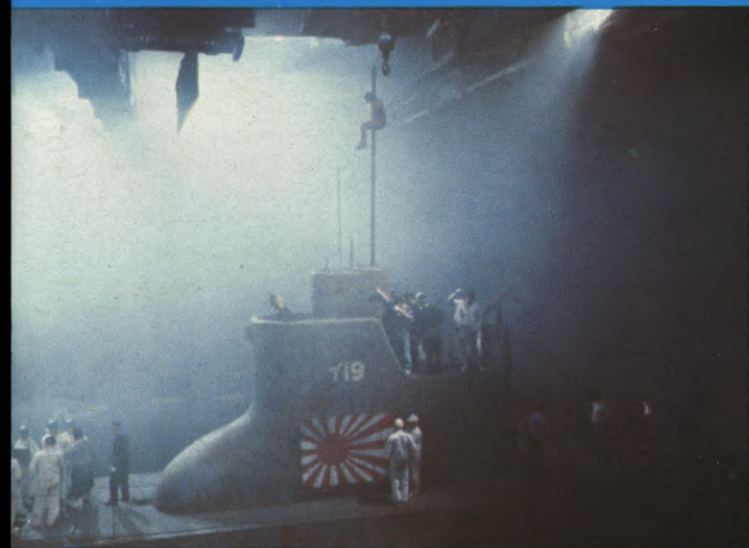
God, that's sensational!" My tests are to say, "Ha, we missed it there. Why did we miss it there?" We never should test to see how good we are, but how bad we are and where we miss. That's the validity of tests. It's a negative approach, but it's the best approach, because we eliminate a lot of things. If it doesn't quite work, we forget about it and move on to another area, try to find another solution. I speak collectively because I feel that it's a team effort. There is no one man who makes a picture. You're only as good as the people you have around you.

**QUESTION:** Let's talk about the smoke a little more. It's my understanding that you used smoke throughout most of the filming. Is that true?

The proverbial "cast of thousands" (or at least hundreds) packs the giant set representing a segment of Hollywood Blvd. on a wild Saturday night in December of 1941. The oversize Santa Clauses and other ornaments are typical of the decorations that are erected on the Boulevard during the Christmas season. Again, the lighting of this vast set had to precisely match that of the previously-shot miniature. The LOUMA Crane is much in evidence here.







(LEFT) The heavy use of chemical smoke to fog the set is indicated in this photograph showing the full-size Japanese submarine. (RIGHT) Even small sets for intimate action were given the smoke treatment. The heavy use of smoke for texture started with the filming of the miniatures, where it smoothed out the images and helped hide wires. "However," cautions Fraker, "once you start to texturize the film, you have to continue with that same texture."

**FRAKER:** I'd say almost 100 percent of it—some sequences a little bit more than others. As I said before, we started shooting the miniatures first—with smoke—and that determined the look for the rest of the picture. That gave us a start and we were happy with it. The first time we went into live action, which was a sequence with Warren Oates, supposedly shot in Barstow, California, we lit it and looked at it and I said, "Something is missing. It just doesn't have that feeling." I went to A.D. Flowers, the special effects man, and I said, "I need smoke all over the background." He said, "The wind is blowing like a mother." I said, "I've got to have smoke. Something is missing back there. This doesn't work." He said, "Give me ten minutes." Then he took the halves of 35 film cans and put charcoal in each one of them. He sprinkled the charcoal with beeswax and set it on fire. He now had 35 smoke pots burning and, in 15 minutes, we had smoke drifting through the whole scene. We'd hit a light and it would flare and

make the whole scene work for us. From that point on, every scene or sequence had smoke to some degree and that's what gave us the look of the picture.

**QUESTION:** But if you do use smoke 100 percent, as you say you did, how do you motivate it in every sequence—the so-called "normal" interiors and exteriors, for example?

**FRAKER:** You don't. Once you texturize the film you have to continue with that same texture, and then, after about ten minutes, it's accepted by the audience. There's some question as to whether you can get away with it all the way to the end of the picture two hours later, but that's the chance you take and that's what you try to achieve: I was on the picture for a year and we were shooting for about seven months. During that time we had changes of weather and changes of season. Sometimes we'd go out and it would be bright sunlight; at other times it would be overcast. We tried to keep it

even. It was a physical eyeballing task to keep it all somewhat even. I don't think that I accomplished that 100 percent. Trying to keep it all even was the toughest part. I judge the degree of a cameraman's ability by the consistency he maintains in a picture from scene to scene. It's tough, but the more consistent a cameraman is, the better he is—and the better the picture is visually. I think we came up to about 80 percent, although we sure tried for 100 percent. Some sequences we really blew out; other sequences we didn't. Steven loved some of the stuff that I really blew wildly. When I saw it at the lab and did the timing, I wasn't quite sure that I was happy with it and I wanted to bring it down, but Steven said, "No, no, it's got to stay up. It's gorgeous!" He flattered me so much that I let it go. He was right, though. He knows what he's talking about. He knows what he likes—and he does know what the audience is going to like and not like. The consistency in "1941" I'm really not too  
**Continued on Page 1246**

Furious street action, with charging tanks, diving airplanes and countless explosions and other mechanical special effects kept the cinematographer and the camera crew on their toes. Not only was the lighting of this spacious set a considerable challenge, but coordinating the lighting and camera angles with the specific requirements of the myriad mechanical special effects posed added problems.





# DIRECTING

# 1941

The director tells how it all began, how it grew and grew, and how it became something hard to describe, but (hopefully) a film that will make millions of people laugh in all the right places

By STEVEN SPIELBERG

"1941" is a spectacular look-back at history as it never was. It's history as we wish it had occurred. "We" meaning the writers and all the actors and myself. It's being called a "comedy spectacular" and a "comedy adventure", but I don't think anybody to this date knows really what it is. Whatever it is, it's the craziest son-of-a-bitch film I've ever been involved with and it's a real risk for me because it's not the linear story form that I'm used to working with.

The movie is about seven sets of characters who are all affected by the panic that overcame Southern California in 1941 shortly after Pearl Harbor had

been bombed, when we thought that Southern California was to be the next target on the Imperial Japanese agenda. It's about the seven sets of characters and how they are affected by the paranoia of that week following Pearl and, of course, all of these characters get to know one another and barrel into each other for a rather rousing, supercharged climax.

If I had to compare this to another movie—which I hope I won't often have to do—it would be difficult. Yes, there are elements of MAD, MAD WORLD and perhaps a few elements of THE RUSSIANS ARE COMING, but more than

anything there are elements of HELLZA-POPPIN and that kind of free-style, mad-cap insanity. It's true when I say that "1941" may be too intense for normal people. I just hope there are enough abnormal crazies in the world to make Universal and Columbia back their 30-million-dollar negative cost investment. If not, it will be the funniest two hours you've ever seen on the Late, Late Show in a year.

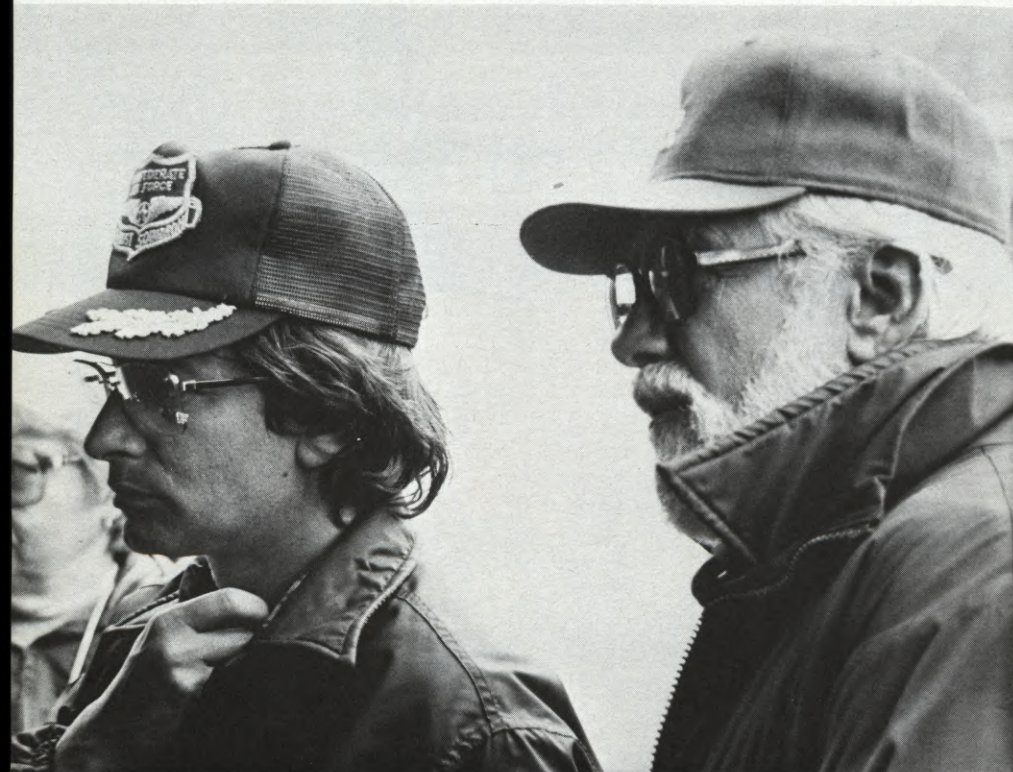
It was quite an experience for me and a quite unlikely choice after making a science-speculative film like CLOSE ENCOUNTERS, or a sheer audience horror film like JAWS. I had always wanted to try a visual comedy, but with enough adventure and action where I felt that I'd be sort of in my own element and not out in the cold, although there is nothing harder to accomplish than getting an audience to laugh. Getting an audience to scream at a shark or getting an audience to cry at the awesome wonders of outer space and some sort of extra-terrestrial rival is nothing compared to getting 800 people per screening to laugh out loud at something you think is funny. The sense of humor is so subjective that there is nothing more disappointing than expecting a laugh and not getting it—and nothing more rewarding than getting the laughs where you hoped you would.

The Director of Photography on "1941" was Bill Fraker, ASC. We had worked together before. After I saw the rough cut on CLOSE ENCOUNTERS, I went back and shot some extra scenes and Billy was the cinematographer on those. I really enjoyed working with him so much on CLOSE ENCOUNTERS. He turned out to be one of the most pliable and open-minded cinematographers I'd ever met, let alone worked with. He will try absolutely anything and his attitude is very positive. As far as he's concerned, nothing *can't* be done. There is no groaning and moaning and scratching of the head and pacing; there's no histrionics.

Bill Fraker is a professional, a hard laborer, and he's also a spectacular artist. It's nice when those two worlds can meet—when he rolls up his sleeves and becomes a hard-hat, and yet paints with light like a Rembrandt. There is something about that combination that I'd wish for on every movie from now on. Unfortunately, Billy is turning to directing and I think he's going to get away from cinematography for a few years. That's not only my loss, but that of every director who really wants to work with one of the best cameramen in the world.

Fraker has a great sense of humor. He had me laughing more than the script, more than the actors. I got very moody on

Director Steven Spielberg and Director of Photography William A. Fraker, ASC, team up for "1941" after a successful collaboration on added scenes for CLOSE ENCOUNTERS OF THE THIRD KIND. Both are highly dedicated, technically skilled, meticulous artists for whom there is nothing more important than the film they are working on.





this picture because it was not what I do best. Comedy is not my *forte* and I was relying a lot on the casting. I figure that if I cast funny people in a movie, they are going to do some funny things, but trying to figure out what's funny and what isn't is like trying to predict earthquakes in California. And yet, Fraker would always be the one to come over to me and say something in my ear that would crack me up and loosen me up and get me to sit down and relax and slump my shoulders, as opposed to hunching them. As a matter of fact, he was responsible for a lot of the really funny lines in "1941".

All of the big action set pieces were pre-planned, as they have been in every movie that I've done. The dogfight over Hollywood Blvd. (which creates the "invisible" air raid), the Japanese assault on Ocean Park in Santa Monica—set pieces like that were prearranged through hundreds of sketches done by George Jensen, once again, who worked with me on CLOSE ENCOUNTERS in the visual concept department. We sat down six months before even the first miniature was built and sketched together. We did the storyboards for the entire movie. A lot of the storyboards changed, out of necessity, and out of just the usual problems that arise when my eyes are too big for my budget, but everything was pre-planned in the greatest detail.

The script for "1941" was written by Robert Zemeckis and Bob Gale, two former USC film students who barged into my office one day, having just seen JAWS and saying, "It was a terrific picture and we're young filmmakers and we'd sure like a break some day." They tossed me a film Bob Zemeckis had made at USC called FIELD OF HONOR. I took the film home, looked at it and, my God, it was spectacular for a film student in his early twenties to have made such a picture with no money, with police cars

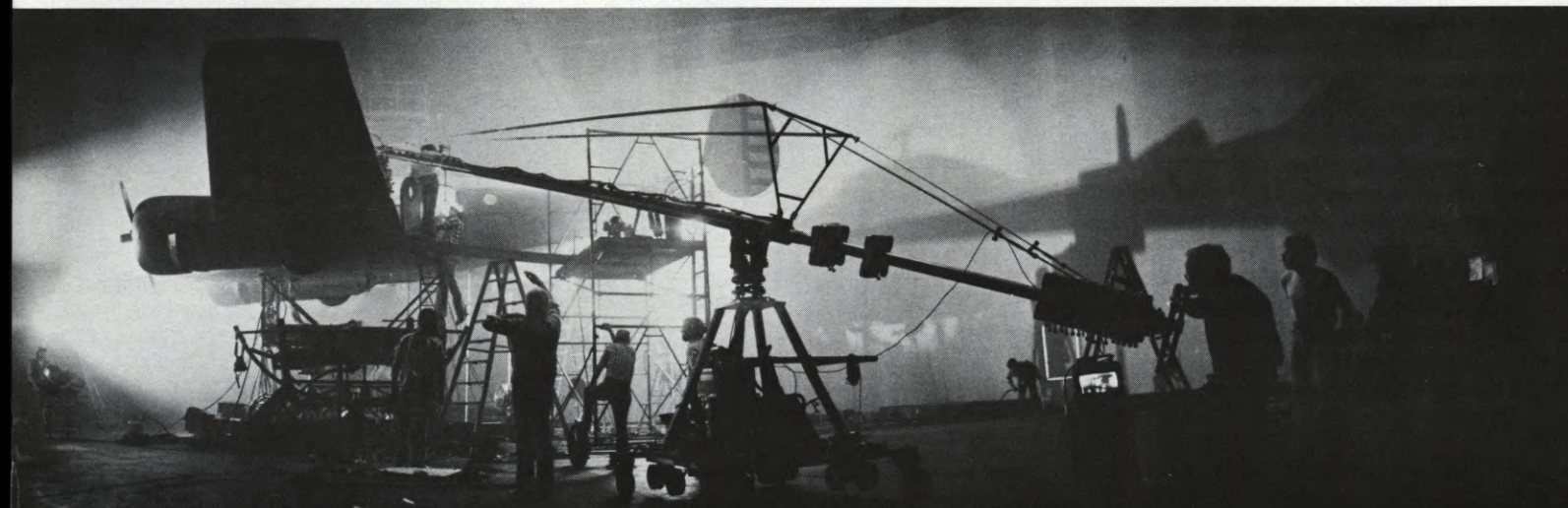
and a riot and a lot of crazy characters. It was very well done, all dubbed to Elmer Bernstein's score for THE GREAT ESCAPE. I saw that picture and I said, "This man is worth watching." Then, sure enough, I was right in the middle of CLOSE ENCOUNTERS when I read the "1941" script that the two Bobs, as we call them for short, had written for John Milius to direct in 1976. They gave me the script and I read it and thought it was hilarious. I just laughed myself sick and I said, "Gee, John, if you ever get tired and want to do something else instead, I'd love to do it." Not long after that John called me and said, "Look, I'm going to do a surfing film called BIG WEDNES-

DAY, so you can do this instead." I said "Sure!"

I was in pre-production on CLOSE ENCOUNTERS at the time. I left the location and the two Bobs came down and spent about eight weeks with me and we did some rewriting. Then they went back and finished the screenplay. Once CLOSE ENCOUNTERS wrapped, I moved right into "1941". In the meantime, I gave them a chance to direct their own movie, I WANNA HOLD YOUR HAND, which, even though it didn't do very well at the boxoffice, was beautifully received by the critics—as are, I guess, everybody's first films. This was no exception, Continued on Page 1215



(ABOVE RIGHT) Spielberg, shown with Jean-Marie Lavalou, co-designer of the LOUMA Crane, signifies "thumbs up" for the ingenious device which allowed him to put a camera anywhere his vivid imagination could dream up. Intending to use the LOUMA for only a few select shots, the director became so enamored of it that he made it his "A" camera on "1941" and used it almost constantly. (BELOW) The LOUMA Crane in action on "dogfight" sequence.







Color still from "The Deer Hunter" filmed by Vilmos Zsigmond with HMI light.

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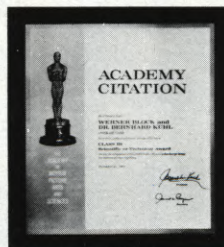
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## DIRECTING "1941" Continued from Page 1213

but they got their start and now they are directing a movie of which I am Executive Producer called *USED CARS*, with another cast of loons and idiots.

There are a lot of interesting and skilled actors in this film, but in a class by himself is the great Japanese star, Toshiro Mifune. I've been a fan of Toshiro's through every film that he's ever made. He had played parts in several American pictures, but they had been, in my opinion, inferior roles for a man of honor, a great international actor. I really thought that having him play the heroic commander of the Japanese submarine would help me make my film more legitimate. He was agreeable and when he came to Hollywood we met and talked and, in the Japanese tradition, there was an exchange of gifts.

We got along great. Toshiro is very fastidious about accuracy and he was very concerned that all of his scenes be historically accurate. He made sure that when he looked at the submarine set, all of the Japanese writing under the dials was correct. I had a standby painter right next to Toshiro and he would tell him what to paint. He would write it on a piece of cardboard and the man would paint it for him.

I hired a lot of Japanese-speaking extras, a crew of forty, but a lot of them had never been in the military and Toshiro, between takes, drilled them like a D.I. If they'd wanted to invade Santa Barbara they could have taken it over tomorrow. That's how well Toshiro mustered his forces. I just let them alone. He gave them directions. He gave them lines

to say in the background. When it came time for the Japanese to man the five-inch deck gun and shell Santa Monica, he knew exactly what to tell them. All the firing orders, the commands to fire and reload, came from Toshiro, so I guess he directed himself in his own sequence.

He was extremely easy to work with. He was the first on the set, the first out of Makeup, the first to do it right on Take One—and the first person to make me feel like a Japanese Samurai.

As far as the other actors were concerned, part of our aim in casting this picture was to cast against type, to put people in parts you would never expect to see them in and where, if you did, you would say to yourself, "Why didn't he play that part before?"

John Milius had suggested—and it turned out to be a master stroke of casting—that Robert Stack play General Stilwell, and when you see Stack as Stilwell alongside a photograph of the real General Stilwell, the resemblance is remarkable. John Belushi was cast because only Belushi could play "Wild Bill" Kelso. In a way, John steals a lot of the movie because his material is more outrageous than everybody else's. Dan Aykroyd came aboard because, after I made my deal with Belushi, John said, "I've just read the script and what about Danny Aykroyd for Sergeant Tree?" I said, "What a great idea. I wish I had thought of it." And Danny was in the next day.

Most of the principals in the cast were chosen for their rather anti-social behavior. Warren Oates plays a crazed colonel, "Madman" Maddox, who has a bomb disbursement unit in Barstow, California. He is convinced that the Japanese are

Spielberg hitches a ride on the World War II vintage tank that runs amuck on Hollywood Blvd. in the film's zaniest sequence. Rebuilt from a real Sherman tank, the mechanical monster had to be fully operational so that it could move into the Battle of Hollywood with all guns blazing.





# THE MINI-WORLD OF "1941"

Realism on a small scale, rather than dollhouse cuteness, was what was required to make the "1941" miniatures match the full-scale sets

By GREGORY JEIN

I believe it was in September, 1977, when I had just finished working on CLOSE ENCOUNTERS OF THE THIRD KIND with Steven Spielberg that he approached me with the miniatures assignment for "1941". It sounded like a very interesting type of film. I'd always wanted to work on a science-fiction movie and a war movie and a serial. Two out of three ain't bad.

I started working for Steven as soon as the Mothership photography was in the last stages of completion. I set up a little office in Burbank right across the street from the Burbank Studios and about three weeks later he called and said, "We have to do another shot for CLOSE ENCOUNTERS. Take yourself off the '1941' payroll and go back on the other one." That will give you an idea of the kind of scheduling we had going.

But then we got down to some very nice storyboards by George Jensen and we could see what type of thing we had to do. Our basic challenge initially was to reconstruct in miniature an amusement park exactly as it was in the 1940s. That was the old Ocean Park. The Art Department and Research Department came up with quite a few photographs and line drawings and we just sort of took it from there, trying to make it, not like a dollhouse, but realism on a small scale—down to the minute detail of the paint chips, the wires, the cobblestones in the streets—even the posters of the period (completely aged). It was a sort of diorama-ish jackpot.

Our biggest problems, of course, were related to time and money, but I think that, considering the amount of time and money available, we did a good job. I was very pleased with a lot of the footage that I saw. Bill Fraker, who did such a fabulous

job as Director of Photography, kept telling us, "Let the miniature light itself." So we built in as many miniature light sources as we could find on the actual buildings and just took it from there, making it come to life.

Later on—I believe it was in August, 1978—we found out that we were going to have to build Hollywood Blvd. in miniature. At first it was going to be only a small section of the Boulevard, but it wound up occupying the whole sound stage, with some buildings more than 25 feet tall.

We did have to resort to forced perspective because of some of the camera angles and the limited size of the stage. I would say that within the first two blocks we started knocking down the scale drastically. We ordered approximately 1,000 cardboard boxes from different manufacturers and cut windows in them and lit them up. I would say that within 20 feet, the scale went down to 1/10th of its initial size. So the whole northern area of Hollywood was actually a forced perspective set. There was little detail and lots of lights at both ends of the Boulevard, but on the western side it was all the same scale.

We had excellent research on Hollywood Blvd., too. We were supplied with enough period pictures so that we could easily match things up—or we could always go to downtown Hollywood and look at the buildings that are still there and make them look like they were supposed to look almost 40 years ago.

A bit of dramatic license was taken in recreating the Hollywood Blvd. of that era. In order to get the best camera angles, some of the buildings were physically transposed across the street, so that now the Broadway-Hollywood, for example, was on the north side of the Boulevard

instead of on the south side. We moved the Hollywood Roosevelt Hotel about three blocks east, also. As a result of these liberties, what you see on the screen is not quite a geographically accurate representation, but dramatically it works much better.

One of the main challenges in building the miniatures for that sequence was the fact that the camera kept changing angles and you kept seeing things that originally you weren't supposed to see. Also, we were never supposed to go down to street level—no lower than the eleventh story, to be exact—but after we'd set it up Steven decided it looked so great that he wanted to go down to street level after all. This meant that we had to detail the bottom halves of the buildings also. It was a lot of hard work and a lot of people put in a lot of long hours, but I think it came out very well.

Once we got down to street level—adopting the pedestrian's point of view—we had to worry about a lot of new things. For example, we had to build in miniature the various Christmas ornaments that traditionally decorate Hollywood Blvd. in the holiday season and we had crews wiring miniature lights that actually had to match those in the full-scale sets. Then the next trick was wiring them all up to a control box so that they could be regulated to the correct degree. As I said before, most of the miniatures were lit by their own practical lights, but Bill Fraker and his crew handled the overall lighting and they made it blend together marvelously.

One problem with the miniature lights was that they had to be very hot in order to be read on the screen, because everything was shot in smoke. This meant that all of the models had to be made out of materials that would not burn up or smoke. Occasionally we did have a Santa Claus with a melted pot belly, but there were no major accidents.

Because of all the research and development we had already done in lighting the Ocean Park set, we used not simply obvious sources like "grain-of-wheat" lamps in lighting the Hollywood Blvd. set, but more reliable sources, some of which could be considered breakthroughs in lighting technique. We used circuit boards in a number of cases, but by and large, we used light sources that were commercially available but not too well known, and they worked marvelously.

Both the Ocean Park and Hollywood

Gregory Jein sits in his office (which resembles Santa's Workshop) dreaming up designs for the miniatures in "1941". He had previously worked with Douglas Trumbull on miniatures and effects for Steven Spielberg's CLOSE ENCOUNTERS OF THE THIRD KIND.





Blvd. miniatures were built in 1/8 scale, or 1 1/2" = 1', the approximate size of a STAR TREK or CHARLIE'S ANGELS doll. We were aware of the many 1' = 1" dollhouse accessories available, but decided to go with a larger scale to get more out of our special effects. Those effects, involving explosions, fire and water, contain elements which are very difficult to scale down. Therefore, the larger your scale the better. Obviously, building the sets in full size would have been financially impossible.

Walking through the sets you felt like a modern-day Gulliver. In most instances you had to get on your hands and knees to see the details in Ocean Park: miniature delicatessen goods in the store windows, menus on tables, pinball machines in arcades, and period movie posters on walls. The Park was even littered with miniature newspapers describing the Pearl Harbor attack.

Hollywood Blvd., on the other hand, was much more confined and massive. Most of the buildings were at eye level, some were over 25 feet high. Unlike the structures in Ocean Park, only those buildings on both sides of the Blvd. were in the same scale. We were able to use forced perspective on the Blvd. because there were more restrictive camera angles.

Since Ocean Park required a number of functioning rides we developed our own miniature engineering staff. The Merry-go-round was originally rigged to blow up, but when Steven saw it operate he decided it was too good to wreck. However, the ferris wheel couldn't be saved, since it played an integral part in the story. Matt Sweeney and others spent four weeks developing a 12-foot steel wheel which would be flown down and off the pier from an overhead bed. Printed circuit boards with lights were the frosting on the cake.

The lighting of our miniatures could have created quite a problem if handled without a great amount of forethought. Fortunately, the head of our lighting crew, Robin Leyden, was well versed in all the latest sources and design in miniature lighting. His innovative knowledge of electronics was put to quite a test. Not only did the lights have to look like regular full-scale bulbs, but they also had to be extremely bright. When you consider the size of the Ocean Park miniature (120'x90'), you begin to appreciate the labor it took to tie all the lighting components into a master console capable of individually raising and lowering most of the lights.

The development by Larry Albright of 4mm custom-built neon tubing enabled our miniature sets to take on the colorful flair of the originals. We used a good deal

of this miniature neon in both the Ocean Park and Hollywood Blvd. sets and we made it look and work like real lights, complete in some cases with the flicker of the "dying neon" that you see so often. Larry's neon proved so popular that many of the crew commissioned pieces from him.

Radio-controlled models were used throughout the production with varying degrees of success. In Ocean Park, the figures on the ferris wheel and submarine worked well. The miniature of "Lulu-belle," Sgt. Tree's tank, ran just like the full-sized one—complete with rotating turret and elevating cannon. However, some of the explosive charges in a hot dog stand were detonated by outside interference—most likely studio walkie-talkies or C.B. transmissions.

The rolling stock seen on Hollywood Blvd. was another last-minute job (due to the sudden decision to go down to street level). I carved a little car out of foam and we sent it over to Universal to have a vacuum form made off of it. Then we went

to a lot of drugstores in the area to find a certain cheap toy and just pull the wheels off of it. My production assistant was getting the strangest looks in the drugstore because he would go in and buy bags of these little cars for \$2.00 and strip the wheels off.

Most of the vehicles shown were parked at the curb. Some of them that moved were being pulled on monofilament wire by a man off-stage. We tried the interesting experiment of putting radio-controlled undercarriages beneath some of them, so that they would dodge in front of the ground-level camera, but again we ran into interference from extraneous radio sources. This proved irritating, because they would often veer out of control and smash into each other or into our radio-controlled camera dolly (which proved equally unmanageable at times). Our model storage room began to look like a used car lot with all the dented cars around being repaired. The trolley cars we made did not move at all, but they

**Continued on Page 1242**



Initial assignment on "1941" was to recreate in miniature the long-vanished Ocean Park, a seaside amusement pier popular in the Forties. The miniature set required a number of functioning rides, including a Merry-go-round and a ferris wheel (which later is blown up and rolls into the sea). Technicians working in the set indicate its scale.







To shoot Huey landing on sandbank, 16SR was wrapped in plastic bags. Camera crew shooting inside copter wore army uniform

so they could be in other camera's shot. Cameramen often shot over machine-gunners' shoulders. Ejected cartridge cases

would fly through frame; noise of gunfire so close would cause cameramen and camera to flinch, adding to realistic look.

## How and why part of "More American Graffiti" was shot in 16mm using the Arriflex 16SR:

The Vietnam sequence needed a combat footage look. To create that *controlled* illusion called for some unorthodox techniques and skills.

Bryan Anderson floats 16SR as he follows running soldier, for unrehearsed combat-footage look. "With the SR's closing eyepiece," he says, "I could begin or end a

shot like this with my eye at the finder. People were at first a little dubious about this way of shooting, until they saw the rushes. After that, they wanted more."



"The original blowup was beautiful," says Editor Tina Hirsch. "During dubbing, we projected the workprint on a 25 foot screen at Goldwyn. The blowup material looked *much too good* — as though it *belonged* with the 35mm footage, especially the multiple-image stuff. To make it look authentic, we had to ruin the quality."

### Four formats

*More American Graffiti* cuts back and forth between four visual formats. One strand of the story was shot with long lenses at 1:1.85. Another was shot wide-angle and anamorphic. A third is multiple images. Those three are 35mm.

### Blown up twice

The fourth strand was shot in 16mm and blown up — *twice*. To make that sequence look more distinct, the footage was first blown up to a 35mm CRI and a timed workprint made. From that, *another* negative was made, optically blown up a further 10%, using camera original stock to gain contrast.

### Hand-held dialogue

"Many people think the Vietnam sequence is the best in the film," says Director of Photography Caleb Deschanel. "The gritty quality of the



photography makes you really believe what you're seeing. The whole thing was shot hand-held, including dialogue scenes. We kept reminding Bryan Anderson and Hiro Narita (the operators) that *they* were under fire and in danger."

#### Grab it and go

"We needed cameras that would let us move fast *and* help us get the best possible 'combat' footage. You can always degrade the image later, as *we* did – but you can't improve the *shot* later. We all felt comfortable with the SR. It seemed really solid. The balance was great. The battery was right on the camera, so you could grab it and go. *Excellent optics.*"

#### One-take explosions

"When we got to shooting the battle scenes and helicopter stuff, we would slate the rolls and just get in there and do it," says Mr. Deschanel. "We tried to keep a full mag in case things got out of hand, but we often ran out anyway. Being able to reload quickly helped us a lot – especially with explosions and difficult helicopter scenes."

#### \$2250.00 an hour

"Things were constantly in a big rush," says Writer-Director Bill Norton. "The Huey helicopters were available to us for only three days. In any case, two Hueys plus a Jet Ranger for air-to-air at \$750.00 an hour each..."

#### Crowd scene

"We shot dialogue scenes *inside* the Hueys, in the air. There would be *two* cameramen (with cameras), the soundman, me, the pilot, an actor and some extras, all in there at once!"

**Combat-footage effect called for low angles from behind troops taking cover on ground. Long finder let Anderson walk with SR while keeping lens near ground.**



This shot began with Bryan Anderson riding jeep fender. When jeep stopped, he followed Senator (civilian clothes) and Captain as they ran into a bunker. Anderson made many shots while running. If camera bounced noticeably, editor would sometimes put an explosion effect on soundtrack, opposite the image bounce.



Hiro Narita testing balance of Shakicam used in scene described at right. Observing in the background is *More Graffiti* Director of Photography Caleb Deschanel.

We couldn't have done it in 35mm, obviously. And the two ground battle scenes were shot in one day each."

#### Unusual style

"Because of Bryan Anderson's documentary background, he really came into his own during the Vietnam sequence," says Mr. Norton. "He would frequently suggest unusual approaches to a scene. Since it was 16mm, I'd say *Go ahead*. He got some very spontaneous-looking stuff."

#### Change of pace

"One of the two 16SRs we used was my own camera," says Bryan Anderson. "I've used it for documentaries, industrials and commercials. *I didn't expect to use it on a multi-million dollar feature!* We were told to give it an 'immediate' look. That suited me. I had a great time."

#### Wading backwards

"In one dialogue scene," says Hiro Narita, "Two actors with radio mics crouched, talking, in a river – and then hurried across it under fire. An underwater platform had been built so they could wade thigh-deep. To get the shot, we waded *backwards* in front of them!"

#### Shakicam

"With the camera on my shoulder, it would have been *too* unsteady and too top-heavy for moving in water. So we used Caleb's 'Shakicam.'" (See picture at left.)

#### Tightrope walker

"I held it like a tightrope-walker's pole in front of me," says Mr. Narita. "Just above the surface while the actors talked, then raising it slowly to waist height as we pulled back across the river. Caleb guided me from behind. The SR with a 9.5mm lens was at the right end, the counterbalance on my left. Interesting effect!"

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# MECHANICAL SPECIAL EFFECTS FOR "1941"

By A.D. FLOWERS

Twenty months of non-stop work and ingenuity lead to some of the most spectacular and intricate "gags" ever to tear up the silver screen

I worked on "1941" for almost two years—20 months, to be exact—which is the longest show I've ever been on in my life. As far as the mechanical effects go, there was almost never a time during the shooting when we weren't working on them in some way or another. On most shows you have time between one gag and the next, but on this one they just went on and on and on, and there was never any let-up to it.

We had a wide variety of gags to rig and pull off. In one sequence we had to make the periscope of a submarine come up out of the water, catch hold of a girl, and take her approximately 20 feet into the air. Then we had guns that were practical, like a Japanese deck gun and a 40mm gun that we had to revamp so that it would fire blank shells, but actually show the recoil. All of that was quite a chore to do.

One of the hardest things we had to do was come up with miniature flak. To create anything in the line of explosives that has to match the scale of the miniatures you are shooting is quite difficult.

We had a sequence in which a tank ran through a paint factory. There were vats containing approximately 2,500 gallons of paint. We had to rig the vats so that they would fall and break away and splatter paint all over everybody. We spent quite an exciting night doing that.

The 40mm gun that we had to make recoil was quite a story point. As the gun shoots, it recoils right into a house and keeps on going each time it is fired. It goes through all the rooms and eventually tears the house completely apart. The full-size, two-story house was built on a cliff out at the beach. For the finale, the house falls off the cliff and collapses.

That house was the one gag that we didn't get to build. It was built by the Construction Department and there was no way of incorporating the rollers that we wanted to use to roll it off the cliff. Since the interior of the house was being used for shooting, our gear would have been in the picture. So we waited until they had shot all the scenes they wanted in there and then we actually sawed the house off right at the floor line, put it on wheels and rollers, and had it tied with cables to hold it onto the rollers (so that we wouldn't lose the house at any time during the cutting that we had to do). At all times we had to be careful that we didn't cut too much. We had devices that we called cable cutters and we put these on the cables. At a given moment we literally blew the cables apart and let the house fall down the cliff.

There was an overhanging porch on that house and, in order to get the thing to roll, the porch had to break away first. Then we had to blow the windows out

and make the house fall down the cliff. Here was a house that had cost at least \$100,000 to build—and maybe even more than that. We knew that if the gag misfired on the first shot, it would be awfully hard to make Take Two.

It took eight men working on cue to pull off that gag—one man to blow the cable, one man to blow the windows, one to drop the porch, and so on and so forth. But if any one of those men had missed a cue, or if any one of the releases or explosives had not worked, the whole thing would have fouled up. In order to avoid such a possibility, we got all of our men together and ran through the sequence by the numbers. We checked everything out and, fortunately, on the first take it did roll just as planned. One man hitting a cue is one thing, two is another, but when you multiply that by eight people and are required to have every man do the right thing at the right time and in the right order, it can get to be a problem. There's a lot of luck involved, too—but then, I'd rather be lucky than good at anything.

Except for that house, we were fortunate in being able to actually do all of the construction of the trick props ourselves. Most of the studios have a different department that builds those. Then the mechanical effects crew goes in and modifies them and makes them work the way the director wants them to. However, we built all of that ourselves—the planes, the guns, everything. In other words, we were close to it. We could start from scratch, knowing what had to be done in the final shot, and make everything work. That helped us out a lot. It gave us more work to do, but it also gave us a lot more control.

I actually started as a propmaker at MGM long before I became an effects man and most of those on the crew I picked for this show were the same way. The fact that we had a background in constructing such things made it easier and quite possibly saved a lot of money. Quite often the more people you have to go through to get a job done, the more you're going to spend on it.

As I said before, there was no end to what we were required to come up with on "1941". We had to build a regular Army tank—not a Sherman tank, but modified from a Sherman—and we had to cut everything off of it and start from scratch to make it look like a pre-1941 model that they would still be using in 1941. That tank played quite a prominent role in the

L.B. "Bill" Abbott, ASC and A.D. Flowers, shown with the Oscars awarded them in 1973 as recipients of Special Achievement Award for Visual Effects in *THE POSEIDON ADVENTURE*. The team had previously won Academy Awards for their effects in *TORA! TORA! TORA!*, and they were reunited on "1941".





picture. It shot up Hollywood Blvd., ran over cars, blew up marquees on buildings, and toppled lampposts. It had a machinegun on it and we had to show all of the bullet heads flying through the air and the various explosions resulting from that.

We also had a period fire engine, onto which we had to rig a ladder that was 20 feet long. It broke loose from one end and, as the fire engine came around a corner, it scooped up a stuntman, stopped suddenly at a certain point and threw the stuntman through a window into a restaurant. You can take an automobile and, with a 20-foot lever, turn the thing over—so with a 20-foot ladder swinging from a small fire engine, it was necessary for us to counterweight one side of the fire truck in order to keep it from tipping over. That was one of dozens of problems we had to work out.

The USO sequence had a number of tricky gags that we had to dream up and execute. There was some wild dancing going on and we had to motorize a long table like a treadmill, so that the men dancing on it could roll it forwards and backwards and stop it. It takes a lot of power to move people on top of a table like that.

In that same sequence one of the principals is shown doing some great acrobatics during a dance number. The dancer who is doubling him is shown in the longer shots, but we had to rig a trampoline and overhead track so that when the dancer flips through the air, the other man can land in his place. When you cut it all together, it looks like the principal actor is doing the entire routine.

But there was one series of gags in that USO sequence that was much more complicated than that. There is a Christmas tree which we rigged to fall over and hit the table, which works as a catapult to send a bowl of punch flying through the air. The bowl has to land in a chandelier, tipped slightly to let some of the punch drip out. The dripping punch revives a man who has been knocked out on the floor below, and he moves just enough to get out of the way as the chandelier falls. The rig was like one of those Rube Goldberg contraptions—but there was a lot of Rube Goldberg in this show. It just went on and on and on.

During the sequence of the dogfight over Hollywood Blvd., we had a full-sized P-40 fighter that had to crash into the street, cutting directly from a shot of the miniature planes roaring down. We had to rig a track like that used for an amusement ride and we actually pulled that full-sized plane at a speed of 50 to 60 miles an hour and ran it off the end of the track. After that it was in free-flight for

Continued on Page 1262



Many of the special mechanical effects in "1941" had to do with aircraft, both full-size and miniature. Flowers and his crew had to crash a full-size P-40 fighter onto the Hollywood Blvd. set and for this they rigged a track along which the plane could be pulled at a speed of 50 to 60 miles an hour, taking off in free-flight at the end of the track for about 50 feet.

A trick table was only one of dozens of "gags" rigged for the USO sequence. A long table had to be motorized like a treadmill, so that the men dancing on it could roll it forwards and backwards and stop it. In this same sequence there were series of gags so intricate and interdependent for effect that they took on the aspects of something by Rube Goldberg.





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# PMPEA SPONSORS SYMPOSIUM FEATURING WILLIAM A. FRAKER, ASC

The Professional Motion Picture Equipment Association sponsors a fascinating symposium in which the Director of Photography on **HEAVEN CAN WAIT** compares it with **HERE COMES MR. JORDAN**

By **DEBORAH K. MELTON**

Rumbling begins from behind and suddenly a spaceship looms above. It moves away only to be replaced by the sound of a louder rumble and a spaceship seven times larger than the first. This type of special effect is so realistic says William A. Fraker, ASC, that you're ready to say "Take me—I'm yours."

Not all films grip a person with such arousing excitement, but special effects can be ingeniously used to visually enhance the quality of a picture. Speaking to two large audiences in the plush Samuel Goldwyn Theatre during the annual PMPEA-sponsored symposium, Fraker discussed the affect of today's special effects and the cinematography he used in **HEAVEN CAN WAIT** compared to its 1941 predecessor, **HERE COMES MR. JORDAN**.

"Born with a visual image, today's youth has taken the motion picture and made it into their own art form—expecting nothing less than they should from what can be produced on a screen and in the minds of the viewer," Fraker said. "But behind all the special effects is the quality of well written material."

**HERE COMES MR. JORDAN** was released in 1941, completely photographed and executed in 18 days. It was received as one of the top ten pictures of the year, competing with such films as **SERGEANT YORK**, **DUMBO**, **HOW GREEN WAS MY VALLEY** and **CITIZEN KANE**.

It's a great tribute to the material when a picture based on the same story can, 37 years later, rank among the best with films like **DAYS OF HEAVEN**, **THE DEER HUNTER** and **COMING HOME**.

A self-proclaimed romantic, Fraker prefers to see beauty rather than harsh reality on the screen. With each picture he has photographed, he uses a lens "package" to soften the imagery. In **HEAVEN CAN WAIT** he used Mitchell B-Diffusion, Low Contrast II and Coral I filters.

Most of the special effects in **HEAVEN CAN WAIT** were used during the "heaven" sequence.

Production Designer, Paul Silver, questioned Fraker, "If you were in 'heaven,' where would the light come from?"

Fraker as others, looks for "heaven" above the sun. This meant the light should come from below "heaven."

Robert McDonald, special effects, (who also created "heaven" in the 1941

film **HERE COMES MR. JORDAN**) said it would never work but "you're one of the young upstarts so try it anyway."

Thus began the creation of "heaven." Built 6 feet off the ground on a steel grid, the stage was covered with wet canvas and cooled to 65°F. From each corner of the grid, 1500 lbs. of dry ice created smoke that, with the help of air movers, billowed around the cool canvas and blended with the "cyc."

"After shooting 100 feet of film and getting total black, we knew we couldn't light from below, no matter what we used. We couldn't get an exposure through all that smoke and the canvas," Fraker said. "But we *did* like the way the smoke curled around the cool wet canvas and blended with the 50-foot-high cyc, so we left "heaven" 6 feet off the ground and lit it from above."

In "1941" the "heaven" sequence was similarly created with the exception of a flat stage. It was cooled down with dry ice blowing on the stage floor and rising about eight inches off the ground.

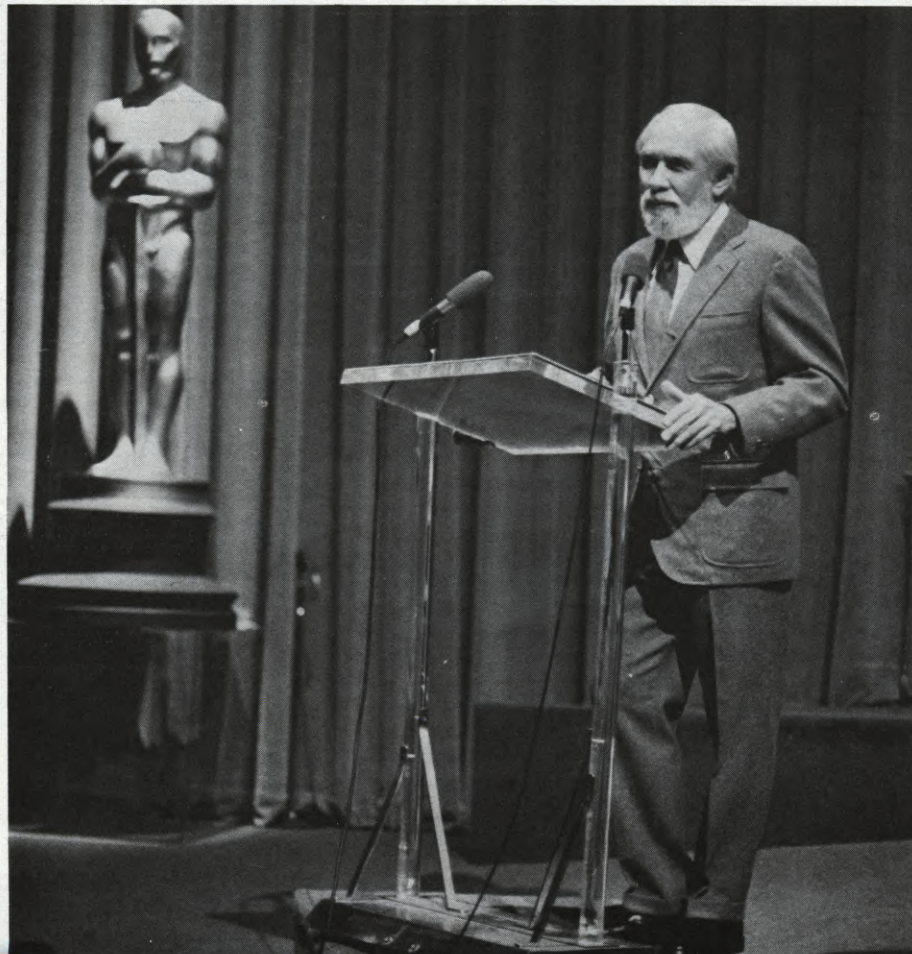
**Standing in the shadow of "Oscar" (for which, incidentally, he has twice been nominated), William A. Fraker, ASC, President of the American Society of Cinematographers, conducts symposium held in the Samuel Goldwyn Theatre of the Academy of Motion Picture Arts and Sciences.**

As President of the American Society of Cinematographers and Member of the Board of Governors of the Academy of Motion Picture Arts and Sciences, Fraker has many credits. He recently completed **HOLLYWOOD NIGHTS**, "1941," and will soon begin a directorial assignment on **THE LONE RANGER**.

Preferring to "create" a set rather than shoot on location, Fraker attributes a portion of his success to attending the "old film school" where students had the opportunity to visually learn cinematography as a medium of expression.

Unlike his contemporaries, Fraker purposely enrolled in night courses so that he could study under such industry leaders as Slavko Vorkapich, Peter Ballbusch and Andrew "Bundy" Marton.

Fraker's synopsis of the evening was greeted with sincere audience applause when he said, "The moment of truth for any cinematographer is when you're sitting in a theater and you see it on the screen—that's where it all happens and you know when it's really good." ■





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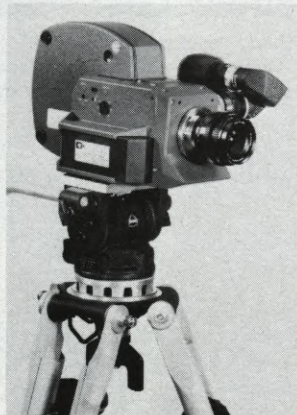
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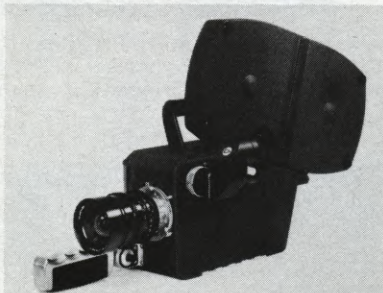
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*Ultra T* 25mm (T1.25) prime lens shown with "state-of-the-art" GSMD 16mm camera (with 400' quick-change cassette-type coaxial magazine), CP orientable viewfinder and Universal 16FX fluid head tripod.



*Ultra T* 9mm (T1.35) prime lens shown with "new generation" CP-16R/A 16mm single/double system sound camera.



# INTRODUCING THE LOUMA CRANE

An ingenious "sky-hook" that permits the director to hang a remotely-controlled camera anywhere he wants it—and then move it around—may well make possible a whole new way of filmmaking

By DAVID W. SAMUELSON

The diminution in size and weight of all the principal items of motion picture camera lighting and sound recording equipment which has taken place in the last few years has made it possible for directors to think anew in the way they interpret a script. The introduction of the compact studio camera which may be hand-held while shooting dialogue scenes, and the invention of the floating camera systems which make it possible for a camera to move above uneven surfaces with freedom from bumps and disturbance have given those who visualise scenes new opportunities. The modern film-maker is almost completely rid of the fetters which bound our predecessors.

One of the last remaining truly capital items of equipment still in regular use is the giant camera boom or crane. Sometimes weighing in at 10 tons, often mounted on a 6-wheel chassis, 25 feet

long and 8 feet wide and cumbersome to maneuver unless there is plenty of space and solid footings, it is an anachronism in our current film-making society.

The compact size, low profile and lightweight nature of modern feature film cameras (such as the Panaflex), the replacement of truck-loads of sound recording equipment by the Nagra and radio microphones, the introduction of the HMI lamps, (four times as efficient as tungsten lamps and five times as efficient as carbon arcs), and the development of closed circuit television viewfinding systems as an aid to film making, are reducing the use of items of equipment which clog the easy flow of day-to-day production. It should not now be necessary to have a camera crane large and rugged enough to carry a blimped studio camera, the camera operator, the focus assistant, the director and one or two Brute arc

lamps all at one and the same time.

The idea of mounting a remotely controlled camera on the end of a slender boom arm with the operator, the focus assistant and the Director relocated to a more convenient place, yet with the same ability to aim the camera, control the lens aperture, focus and zoom functions and view the scene as though all were alongside, is in line with all other aspects of current progress in film-making techniques.

From France, with certain significant contributions from Britain, comes the LOUMA fully modular camera crane or boom arm, which carries a remotely controlled motion picture or television camera. Having worked on a number of pictures in Europe, most notably, SUPERMAN, the new James Bond picture (MOONRAKER) and Roman Polanski's THE TENANT, as well as many other



(LEFT) Hanging off the end of a "cherry-picker", the LOUMA Crane, with remotely-controlled Panaflex attached, shoots an extreme high shot of a ferris wheel in the Ocean Park sequence of "1941". (RIGHT) Video monitors on the set of "1941" serve as viewfinders for the camera on the end of the LOUMA Crane. (BELOW) Camera on the end of LOUMA Crane, with extension, soars out over Japanese submarine in tank of MGM's Stage 30 for "1941".





features, commercials and T.V. shows, it has now completed a lengthy stint in Hollywood on Steven Spielberg's newest production, "1941". So already it has a distinguished track record.

The LOUMA Crane is able to pass through the narrowest doorway, go through a small window, up a circular staircase, shoot inside a submarine, hang over a cliff or the edge of a tall building, be taken up a mountain trail, be delivered in a small van or by helicopter—or even by mule train. It can move from mud to sand, pass from a sewer to a skylight, be mounted on a wagon or inside an aircraft or on the deck of a boat, where it may be able to look down on the top of the mast. With the LOUMA Crane one can put a camera where the eye of a man has never been before—and then move it around.

The length of the LOUMA Crane arm may be varied between 4 and 20 feet (1.20-6m) to suit the scene to be filmed or televised. With reinforcement stays it can reach out 25 feet (7.50m), without any vibrations or floating effect at the end of the arm.

The boom arm is made up of individual duralumin sections which plug together. Each section is light enough in weight to be carried by one man. The entire ensemble is transported from location to location in lightweight aluminium cases. Only a short time is required to set up, to lengthen or shorten the arm *in situ* on location and to pack it away when finished with.

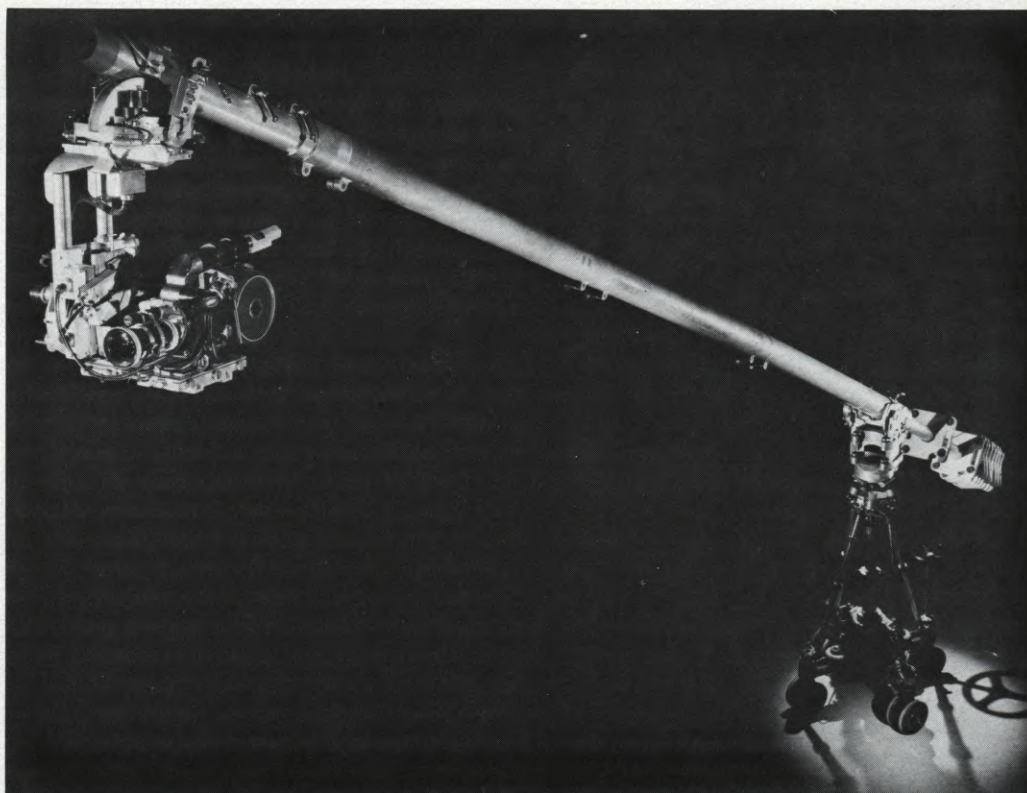
Not only is it possible with the LOUMA Crane to take shots similar to those that are possible with a large camera crane, but it has the added advantages of being able to be dipped into a set, to be raised or lowered bodily in-shot, to be able to be set on the end of a giant industrial crane, or to enable a camera to be placed and operated in dangerous situations or in alien environments.

Let us consider some of the implications of these possibilities. To be able to be dipped into a set, say from the lighting rail, or from a rostrum or balcony, means that 360° pans are possible without the camera photographing its support system. As the camera can be tilted directly downwards, it also means it is possible to photograph inside enclosures which are only open from above.

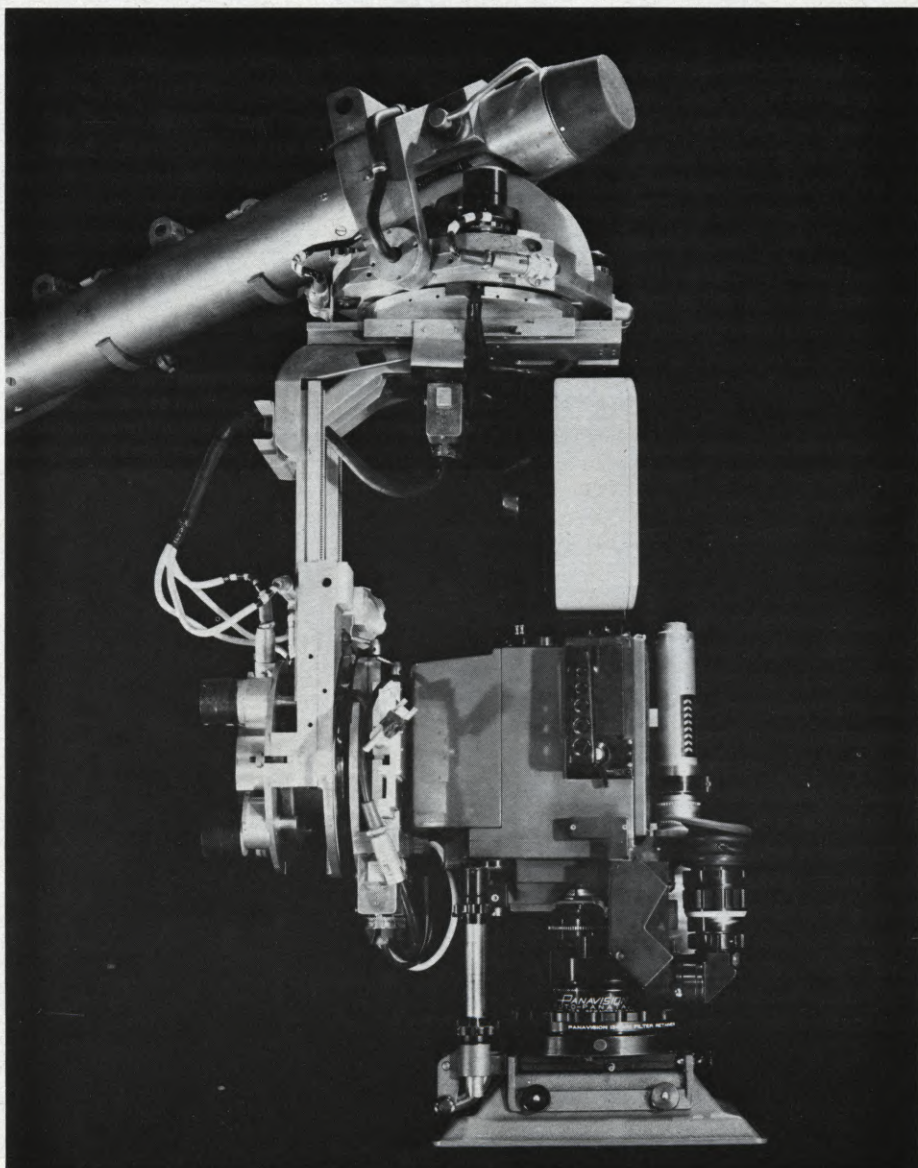
Secondly, the entire ensemble is light enough in weight to be put onto a forklift truck or any lift to be raised up and down in-shot and still be maneuverable in the regular manner of a crane arm. This gives a whole new dimension to camera movements never possible before.

Thirdly, the entire ensemble may be mounted on a platform on the end of a

Continued on Page 1260



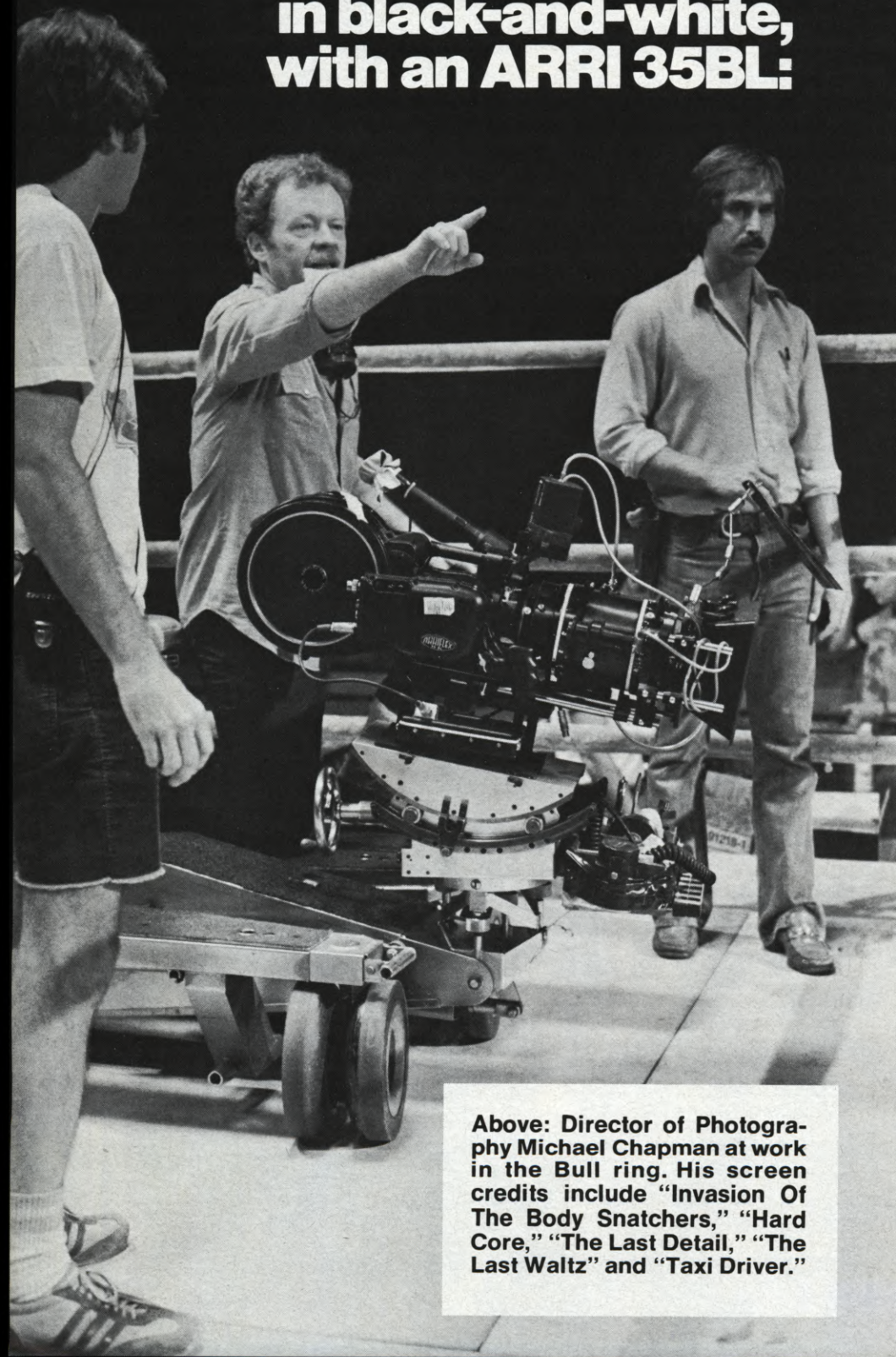
The LOUMA Crane, shown here with Arriflex 35BL camera mounted is a fully modular boom arm that is "portable", in that it can be broken down into pieces for shipment, and can be extended to 25 feet or more by adding extra modules. (BELOW) The LOUMA Crane (shown with Panaflex mounted) can point the camera straight down, or straight up or rotate it in a 360-degree pan.





**"The fight sequences  
are choreographed as though  
it were a musical."**

**Michael Chapman talks about  
shooting *The Raging Bull*  
(directed by Martin Scorsese)  
in black-and-white,  
with an ARRI 35BL:**



**Above: Director of Photography Michael Chapman at work in the Bull ring. His screen credits include "Invasion Of The Body Snatchers," "Hard Core," "The Last Detail," "The Last Waltz" and "Taxi Driver."**

**I**t's about Jake LaMotta, a New York boxer who was Middleweight Champion in the Forties. *Raging Bull* is what the papers called him.

He's being played by Robert DeNiro, whose opponents in the film are all real boxers. Mr. LaMotta himself is acting as a technical adviser and has been on the set almost every day during the fight sequences.

#### **Period stock**

To add to the authenticity and period atmosphere, the film is being shot with Eastman Double X. "I had never used black-and-white before this job," says Michael Chapman. "I was apprehensive."



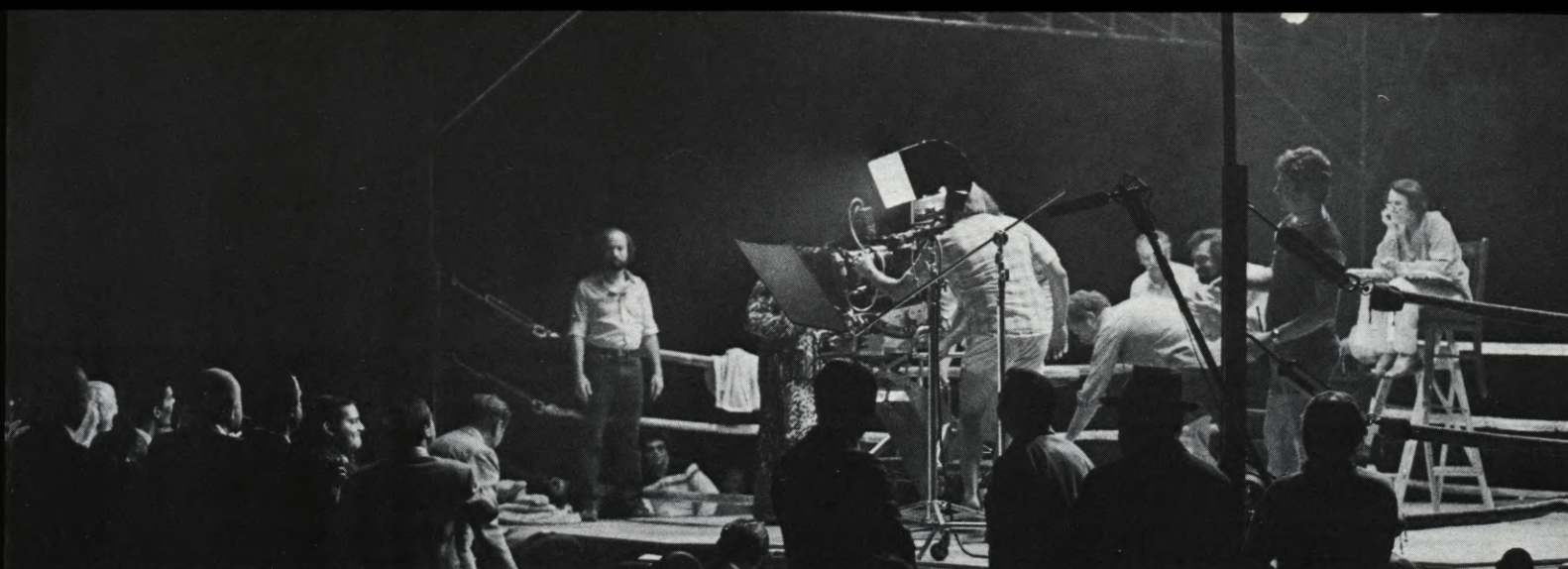
**Director Martin Scorsese  
with DP Michael Chapman**

"Before we started, I screened some black-and-white movies at MGM—*Double Indemnity*, *Salvatore Giuliano*. Even some Buster Keaton, because I remembered liking the simplicity. Separation *without* a rimlight."

#### **Low ceilings**

"We ran the usual tests; and I took a Polaroid onto the set with me, at first. I *still* think shooting black-and-white is more complicated. On some locations with low ceilings and nowhere to put the backlight, it can be difficult."





Shooting ringside spectators. Most fights are shot in real ring. Extra sets: rings that break apart, dividing ropes, one ring

40ft long (instead of 20ft), another that's not rectangular, for perspective distortion, *subjective* sense of what fighter experien-

ces. 'Tobacco smoke' in the air is mineral oil, sprayed onto set for 8 weeks. Since it's a laxative, some of the crew wore masks.

"The choice of camera was mine," says Mr. Chapman. "I've been using the 35BL since *Taxi Driver*. For a realistic look on New York streets at night, we needed fast lenses."

#### Accurate lenses

"After testing for *Taxi Driver*, we found the Zeiss set were the only accurate ones. The marked T1.4 was T1.4. Same thing stopped down. If it said T5.6 it was T5.6. They're superb lenses."

#### Feels good

"Two other things endear me to the 35BL: It's a marvelous camera to hand-hold. Sits right down low on your shoulder, balanced—like part of your body. *It feels good to use.*"

"The other thing I like is the 35BL's simplicity. It does everything I've ever needed—



Operator Joe Marquette and 1st Asst. Dustin Blauvelt run around circle of "press photog." extras for downed boxer's groggy POV of ringside scene. 48 fps, with 16mm lens.

but the system is not intricate. And you can just grab three cases and go."

"The fights will be only about 20% of *Raging Bull*," says Mr. Chapman, "But they're

the high points of the film—so we've spent about eight weeks shooting them."

"Marty (Scorsese) likes a baroque shooting style. Lots of moves, elaborately staged. Different camera speeds. There's a storyboard frame for *every shot in every fight.*"

#### Baroque style

"Boxers constantly circle one another; and our camera never stops, either. 360° pans, crane shots... And every move—boxers *and* camera—is choreographed. Cut together, the fights all look like dances."

# ARRI

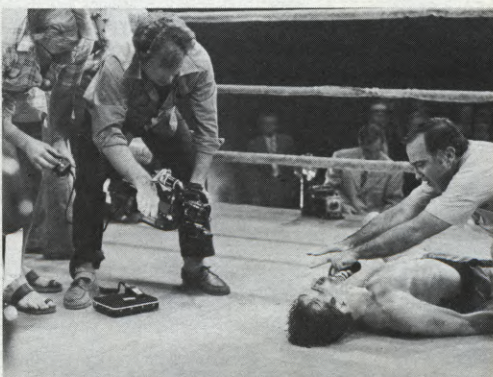
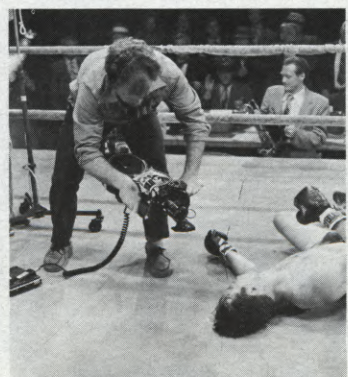
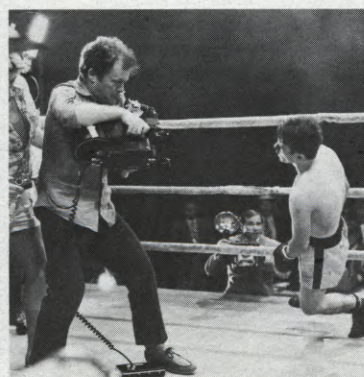
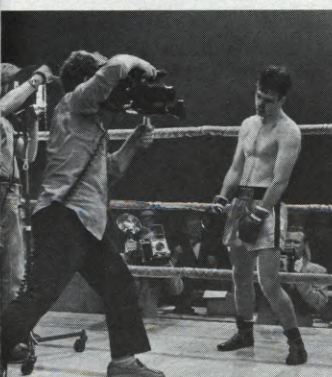
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One of LaMotta's challengers (played by Kevin Mahon) gets knocked out. Michael Chapman

hand-holds a 35BL running at 48 fps, 16mm lens. Closeup shots *inside* ring attempt to convey La-

Motta's emotional POV, as opposed to newsreel or TV shot, spectator's POV outside ring.





# THE 121st SMPTE TECHNICAL CONFERENCE AND EQUIPMENT EXHIBIT

With equipment exhibits crowding every available space, plus record attendance, this SMPTE Conference becomes the most successful yet

By HERB A. LIGHTMAN

By any standards, the 121st SMPTE Technical Conference and Equipment Exhibit was a smashing success. Headquartered at the Century Plaza Hotel in Los Angeles and running from October 21st through 26th, the event was beautifully organized and administered by the various dedicated committees assigned to the complex operation.

Final statistics relating to the Conference are most impressive. More than 1,800 delegates were officially registered. An amazing total of 330 separate exhibitors filled the hotel's lower exhibition area, plus its entire vast ballroom areas, and overflowed into several side conference rooms. The exhibits were eagerly explored by visitors conservatively estimated at 8,000. All of these figures represent records far in excess of any previous Conference.

A total of 108 papers were delivered in the lush Plitt Century Plaza Theaters 1 and 2 directly across from the hotel. The slide and film projection and sound facilities were excellent.

The papers were presented under such general headings as: Laboratory Practices I, II and III; Television Production; Television Post Production; Invited and International Papers, Production and Special Effects; Television Sound Technology; Motion Picture Sound Technology; Consumer Video Technology; Scientific/Industrial Film and Video Systems; Microprocessor Systems Control; International Image Distribution; and Advanced Transmission Techniques.

Of special interest to readers of *American Cinematographer* were the papers relating directly to motion picture technology, including the following:

*Sixty years of Soviet Motion Picture Industry*—By Oleg I. Ioshin and Victor G. Komar, NIKFI, Moscow, USSR.

*Report to the Society on the visit of the SMPTE Delegation to the People's Republic of China*—This was a group presentation with Paul Yang as Moderator. It led off with a statement from the Chinese delegates present, read in translation by Frederick M. Remley. The individual speakers who followed were those who actually made the trip and included: Robert M. Smith, William D. Hedden, Frederick M. Remley, Milton Forman and Sidney P. Solow. Depending upon his own area of expertise, each commented on a separate technical phase of the visit. The program concluded with a stunning display of hundreds of slides photographed in China by the visitors and kindly lent by them.

*A Subjective Examination of the Methods Used to Enhance Images in an Artistic Manner*—Despite its understated title, this paper turned out to be a spectacular presentation by David W. Samuelson showing what various types of motion picture filters can do. On the theory that "One picture is worth 10,000 words", Mr. Samuelson's talk was illustrated by 220 beautifully photographed and coordinated slides—thus saving a couple of million words.

*Considerations for Motion Picture Coverage and Film Production at the XIII Olympic Winter Games, Lake Placid, N.Y.*—James B. DeWitt of the Eastman Kodak Co. described plans for news film coverage, rapid film processing and motion picture production of daily Olympic event summaries, with Kodak as Official Photographic Consultant.

*A Unique Electronic Ballast for Straightforward Use of HMI Daylight Lamps, 575 Watts to 4,000 Watts, Without Compromise*—A paper by Denys Klein, Cremer and C.S.E.E., Paris, France, which describes a new ballast

providing a steady, flicker-free light output of constant color temperature. (The device was on display in the Exhibit area and attracted a great deal of attention.)

*HMI Lighting—A Realistic Evaluation of the Pros and Cons*—An overview of the subject by Milton Forman,

(An unscheduled paper by Richard Glickman also dealt with the most recent state-of-the-art developments in HMI lighting.)

*New Developments in the Todd-AO Anamorphic Lens System*, by Edmund M. DiGiulio, Cinema Products Corporation. Most promising is a new concept in the 16mm area, where a front anamorphic squeeze of 1.5:1 in the horizontal axis is utilized to produce an aspect ratio of 2:1 from a full 16mm frame (for blow-up to 35mm).

*Motion Picture and Holography*—A progress report by Victor G. Komar and Oleg I. Ioshin, NIKFI, Moscow, USSR.

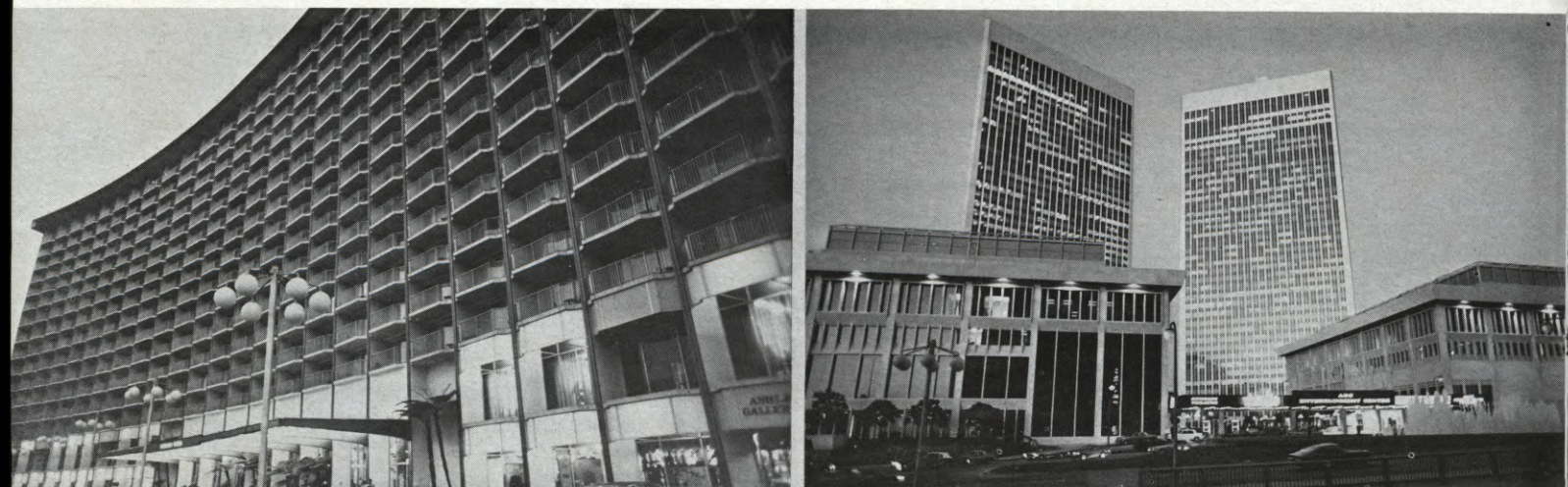
*The Evolution of Motion Picture Equipment*—By Leonard Chapman, Leonard Studio Equipment.

*An In-Camera Pre-Flash System: An Update*, by Vernon L. Kipping, Consultant, detailed latest developments in a system by means of which film is exposed to an in-camera light source immediately prior to the exposure of the film.

The social side of the Conference was far from neglected. The festivities led off with the Eastman Kodak Centennial Party. There was the Awards Luncheon at the Beverly Hilton Hotel and the Cocktail Party, Banquet and Dance at the Century Plaza Hotel.

All those behind the scenes are to be soundly commended for having spared no effort to make the 121st SMPTE Technical Conference and Equipment Exhibit by far the best yet. ■

(LEFT) The Century Plaza Hotel in Los Angeles, headquarters of the 121st SMPTE Conference and Equipment Exhibit. (RIGHT) Directly across from the hotel is the ABC Entertainment Center with its lush Century Plaza Theaters 1 and 2, where the SMPTE papers programs were held. With 1,800 registered delegates and more than 8,000 official visitors, this Conference was the biggest and best yet.





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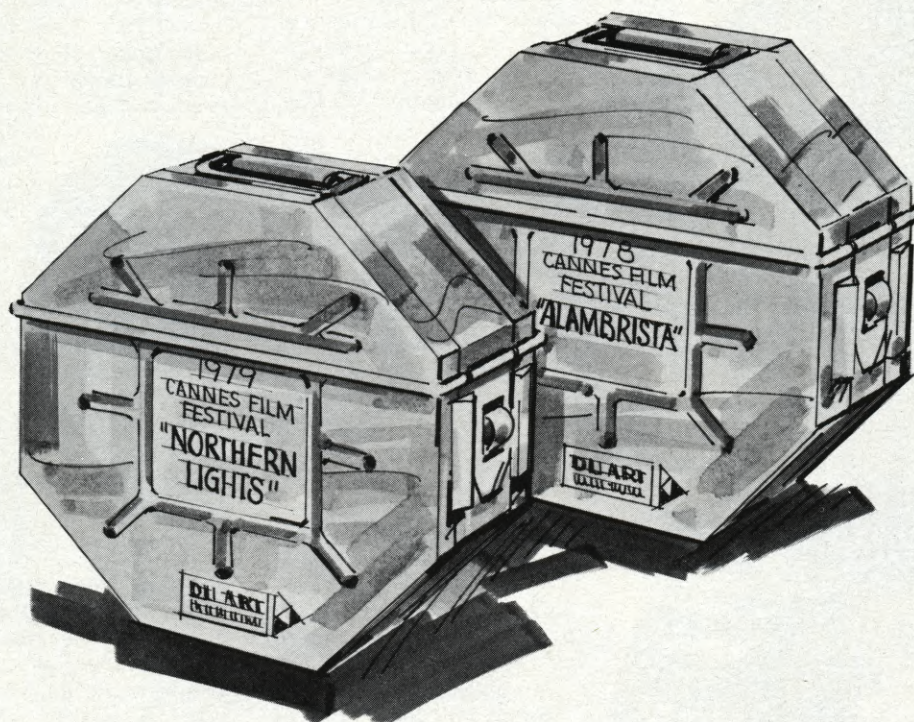


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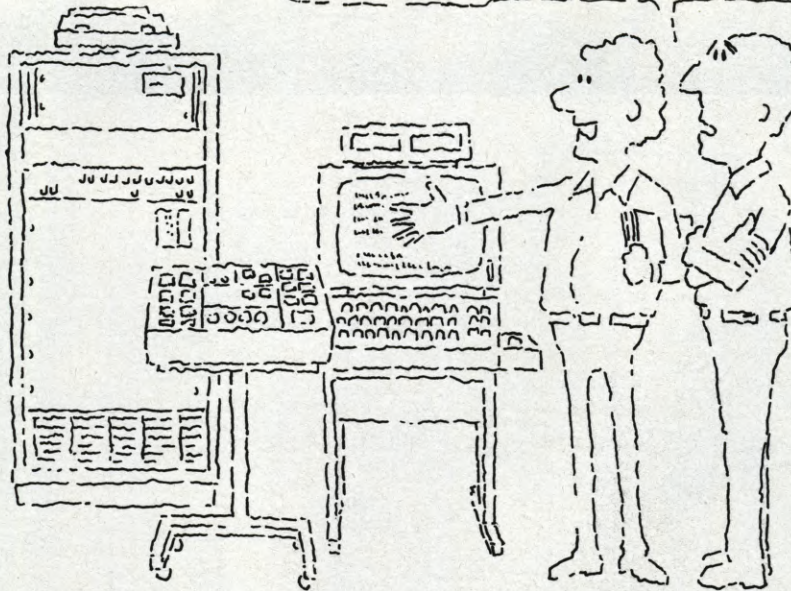
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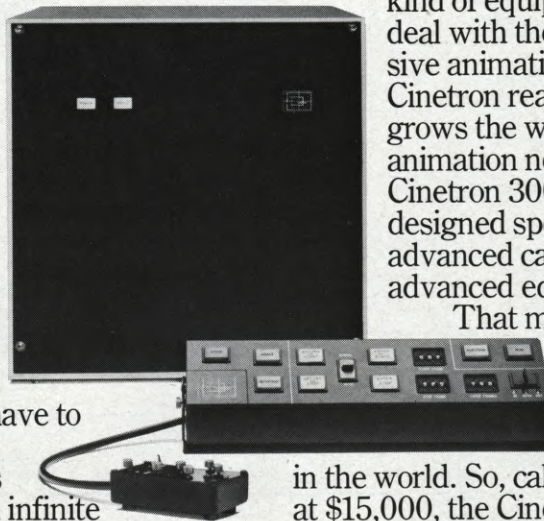
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Bell & Howell 2709, Model B w/75mm, 40mm, 50mm lenses, angle head, Mitchell tripod, 4 400' mags. . . . .	\$2995.00
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	Sale Price
13mm Elgeet f/1.8, "C". . . . .	\$ 175.00
15mm Nominar f/1.4, "C". . . . .	\$ 150.00
16mm Cine Xenon f/1.9, Arri. . . . .	\$ 275.00
25mm Elgeet TV-Synchronex f/1.4, "C". . . . .	\$ 25.00
50mm Kinetel T 1.8, Arri. . . . .	\$ 375.00
63mm Ektar, "S". . . . .	\$ 125.00
75mm Cosmical f/1.9, "C". . . . .	\$ 75.00
75mm Culminon f/2.8, "C". . . . .	\$ 35.00
75mm Yvar f/2.8, "C". . . . .	\$ 175.00
75mm Elgeet f/1.9, "C". . . . .	\$ 175.00
75mm Baltar f/2.3, "C". . . . .	\$ 150.00
75mm Wollensak Raptor f/2.8, "C". . . . .	\$ 135.00
75mm Angenieux/B&H f/2.5, "C". . . . .	\$ 275.00
85mm Zeiss Sonnar f/2, Arri. . . . .	\$ 375.00
100mm Cooke f/4, "C". . . . .	\$ 100.00
100mm Cooke Deep Field Panchro T2.8, "C". . . . .	\$ 150.00
100mm Baltar f/2.3, Eyemp. . . . .	\$ 275.00
152mm Baltar f/2.7, NC. . . . .	\$ 275.00
15" Wollensak f/5.6, Arri. . . . .	\$ 250.00
800mm Astro-Berlin f/5, Arri. . . . .	\$ 995.00
1000mm Omnitur f/4.5, Arri. . . . .	\$4995.00
28-280mm Zolomatics zoom f/3.5, Arri. . . . .	\$4995.00
28-280mm Zolomatics zoom f/3.5 w/viewfinder, BNC. . . . .	\$6795.00
35-140mm Angenieux zoom f/3.5, Arri. . . . .	\$1850.00
35-140mm Angenieux zoom f/3.5, CA-1 (NEW). . . . .	\$2200.00
25-250mm Angenieux zoom f/3.2, Arri B. . . . .	\$5500.00
17.5-70mm Pan Cinor zoom f/2.4, w/7 1/2" VF, "C". . . . .	\$ 450.00
17-85mm Pan Cinor zoom f/2, Arri. . . . .	\$ 375.00
9.5-95mm Angenieux zoom f/2.2, w/7 1/2" VF, "C". . . . .	\$3250.00
12-120mm Angenieux zoom f/2.2, w/7 1/2" VF, "C". . . . .	\$2200.00
12-120mm Angenieux zoom f/2.2, w/12" VF, "C". . . . .	\$2200.00
12-120mm Angenieux zoom f/2.2, Arri (Like New) . . . . .	\$2200.00

## CAMERA ACCESSORIES

Leitz focusing bellows . . . . .	\$ 195.00
Mitchell timing block . . . . .	\$ 125.00
Mitchell I-L viewfinder . . . . .	\$ 75.00
Jagabi speed indicator . . . . .	\$ 320.00
Cine Special microscope attachment . . . . .	\$ 75.00
Cine Special adapter block for animation motor . . . . .	\$ 85.00
Bellows matte box for Bolex . . . . .	\$ 175.00
Arri 35B1 shoulder brace . . . . .	\$ 195.00
Chiles #607 30v Fast Charge Battery w/Fast Charger . . . . .	\$ 475.00
Kinoptik viewfinder for NPR . . . . .	\$ 450.00
Eclair Body Brace . . . . .	\$ 90.00
Lens support for Ang. 12-120 on Arri 16S. New . . . . .	\$ 190.00
Pacedyne 36" sq. multi-camea sync clock . . . . .	\$ 175.00

**All Prices Subject to  
Change Without Notice**

## MAGAZINES

	Sale Price
Mitchell 35mm x 1000' . . . . .	\$ 175.00
Mitchell 35mm x 400' . . . . .	\$ 100.00
Bell & Howell 35mm x 400' fiber . . . . .	\$ 40.00
Bell & Howell OD 35mm x 200' fiber . . . . .	\$ 20.00
Bell & Howell 2709 Bilateral Bi-Pack . . . . .	\$ 795.00
Mitchell 35mm x 400' Bi-Pack . . . . .	\$ 495.00
Cameflex 35mm x 400' . . . . .	\$ 450.00
Mitchell (B&H) 35mm x 1000' w/base adapter . . . . .	\$ 195.00
Bolex 16mm x 400' . . . . .	\$ 150.00
Maurer 05 16mm x 400' . . . . .	\$ 175.00
Auricon 16mm x 1200' . . . . .	\$ 295.00
Mitchell 16mm x 1200' . . . . .	\$ 500.00
Mitchell type 16mm x 400' (NEW) . . . . .	\$ 125.00
Mitchell Magnesium 16mm x 400' (NEW) . . . . .	\$ 235.00

## MOTORS

Alcan 54 crystal motor for NPR . . . . .	\$1995.00
NCE C.V.B. V/S motor w/ Cine Kodak adapter . . . . .	\$ 350.00
Mitchell single system sound 24v DC motor . . . . .	\$ 595.00
Arriflex 16BL 12v governor motor . . . . .	\$ 495.00
Mitchell Mk II V/S DC motor, 2-350; 16-32 fps . . . . .	\$ 695.00
Mitchell 16 24v high speed (96 fps) . . . . .	\$ 395.00
Cameraflex MP-103 motor . . . . .	\$ 250.00
Stevens Model 16 V/S DC motor for Bolex . . . . .	\$ 150.00
Arriflex 16S V/S 8v DC motor . . . . .	\$ 325.00
Arriflex 16S governor 8v DC motor . . . . .	\$ 495.00
Arriflex 16S animation motor w/ copying shutter and control box . . . . .	\$1250.00
Arriflex 16S 110v AC sync motor w/ power supply . . . . .	\$ 295.00
NCE animation motor and control box. (New) . . . . .	\$1250.00

## BLIMPS

Arriflex 16S blimp, complete . . . . .	\$1250.00
Model 600-A Ceco blimp . . . . .	\$ 300.00
Arriflex 35 Cine 60 blimp . . . . .	\$ 595.00
Mitchell Mk II blimp . . . . .	\$1995.00
Kodak Cine Special blimp . . . . .	\$ 295.00
Maurer 05 blimp . . . . .	\$ 995.00
Raby blimp for Mitchell Std., NC, Wall, B&H 2709 . . . . .	\$ 495.00
Arriflex 16S heater Barney . . . . .	\$ 175.00
Bolex body-mag Barney set . . . . .	\$ 95.00

## 35mm MOVEMENTS

Mitchell NC . . . . .	\$1295.00
Mitchell Std. . . . .	\$1150.00
Mitchell Hi-Speed w/ flywheel . . . . .	\$1350.00
Cunningham . . . . .	\$ 495.00
Mitchell Hi-Speed w/chronograph shutter . . . . .	\$1395.00
Wall single perf. . . . .	\$ 795.00
Wall double perf. . . . .	\$ 895.00
Bell & Howell 2709 Hi-Speed . . . . .	\$1350.00
Mitchell single system sound . . . . .	\$1095.00
Cinerama 16mm Hi-Speed . . . . .	\$ 995.00
Mitchell 70mm feed sprocket . . . . .	\$ 395.00

## SOUND

Magnasync recorder/reproducer interlock dubbing system (2 record, 3 playback) rack mounted, audio control board, B & H projector, selsyn motor, cables, patch panel. As is . . . . .	\$2995.00
Magnasync 4 input mic mixer model 745 . . . . .	\$ 195.00
Western Electric monaural mixer console (9 channel) . . . . .	\$2995.00
RCA Model 1600 portable mixer . . . . .	\$ 375.00
Arrivox Tandberg recorder. Very good condition . . . . .	\$ 895.00
Optasound 116R sync cassette . . . . .	\$ 450.00
Model 324 EU shock mount . . . . .	\$ 45.00
Arriflex #339-355 audio oscillator . . . . .	\$ 150.00
RCA galvanometer . . . . .	\$ 995.00
AKG CK-9 shotgun mic head . . . . .	\$ 175.00
Western Electric Series 42 model RA-1241 light . . . . .	\$ 375.00
Western Electric model RA-1437 light valve . . . . .	\$ 395.00
Amplex 35mm "Penthouse" sound head . . . . .	\$ 995.00
Maihak portable reel-to-reel sync recorder; as is . . . . .	\$ 425.00
Maurer Model F galvanometer . . . . .	\$1995.00
Light valve, 200 mil push/pull VA track . . . . .	\$ 325.00
Western Electric console optical recorder w/ magnetic record and playback heads installed, 1000' mag, feed and take-up assy., 2 dubbers, (One mag/ opt), power supply, voltage control, regulator cables . . . . .	\$8995.00

✓ All Equipment Is Used Unless Otherwise Specified  
All Equipment Subject to Prior Sale  
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Nous Parlons Francais  
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# Year End Sale

	Sale Price
Westrex 35mm portable recorder and acc.	\$1495.00
Shure SM 57 mic.	\$ 95.00
Shure SM 61 mic.	\$ 90.00
Shure SM 62 mic.	\$100.00
Shure SM 11 mic.	\$ 60.00
Sennheiser 805 shotgun mic. Rebuilt	\$425.00
Sennheiser MD214N mic.	\$190.00
Sennheiser MKH124 mic.	\$215.00
Sennheiser EM1008 wireless receiver, SK 1008 wireless, transmitter, and MK 12 mic. Very good condition	\$ 295.00
Sony ECM 30	\$100.00
Sony ECM 170	\$ 80.00
Sony ECM 2005	\$ 28.00
Sony ECM 16	\$ 25.00
Sony ECM 50PS	\$215.00
Concord wireless PA system	\$150.00
Mole-Richardson Mic Boom, custom perambulator	\$2500.00

## SWINTEK WIRELESS MICROPHONE SYSTEMS

DC Mk 50 transmitter 161.640 MHz w/2 antennas, case	\$ 695.00
DC Mk 50 transmitter 171.900 MHz	\$ 695.00
DC Mk 50 transmitter 182.200 MHz	\$ 695.00
AC Mk 50 transmitter 169.500 MHz	\$ 730.00
AC Mk 50 transmitter 171.850 MHz	\$ 730.00
AC Mk 50 transmitter 185.200 MHz	\$ 730.00
AC Mk 50 transmitter 203.500 MHz	\$ 730.00

## PRINTERS

B & H Model 6100 CT Additive Color Printer. Manual operation provides basic color and density balance. Includes three manually-operated light valves with 52 steps of trim. Model 6160A 1200W rectifier. Printer speed is 180/60 fpm. Film capacity, 2400 feet. One side edge light. Like new condition, less than 40 hours of operation. Current price, new \$22,490. Our price, like new \$17500.00	\$17500.00
B & H Model D 35mm Cine Printer, rebuilt	\$4995.00
B & H Model J 16mm Cine Printer, rebuilt	\$5650.00
6200MB Single Automatic light valve, standard speed reader, rectifier and sound head. New price \$28,000.00	\$17500.00
Acme 104 Optical Printer 16 or 35 with Bell & Howell color additive lamphouse. New price \$60,000.00	\$40000.00
B & H Model J Printer w/fader, power supply, very good condition	\$5995.00
B & H Model JC Printer w/edge numbering light, very good condition	\$5250.00
Depue Optical Reduction Printer Model K3532, daylight operating, rebuilt, good condition	\$5500.00
Depue 35-32 Reduction Printer, as is	\$1700.00
Herrnfeld Model 35mm Printer w/shotgun color filter changer, used, as is	\$ 795.00
Kodak 35-16mm Optical Sound Track Reduction Printer, rebuilt	\$5200.00
Depue 35-32 Fish-Schurman additive lamp-house w/DC power supply, as is	\$2500.00
Depue light control board for use w/Depue Optical reduction printers. Provides 22 light changes, 75 or 150 scene changes, used	\$ 450.00
DC Power Supply	\$ 495.00

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## PROCESSORS

	Sale Price
Houston-Fearless Model A-11. For 16mm or combination 16/35 B & W negative/positive and reversal. Speeds to 20fpm. Rebuilt	\$3995.00
Houston-Fearless Model S120 PN B & W 16/35 Hi-Speed Spray Processor, 18-150 fpm. Excellent condition	\$5500.00
Houston-Fearless Model 22B B & W 16mm Negative/Positive. Speeds: negative, 18-35 fpm; positive, 25-45 fpm	\$3495.00
Houston-Fearless Model L 16/35 NP Lab-master B & W Processor. Speeds to 40 fpm. Simple modular sections. Easy to operate, daylight load operation, easy accessibility for cleaning. Open face construction. Sold new for \$6500.00	\$3650.00
Triese Hi-Speed C-22 color processor 16/35 ME 4, Replacement cost \$140,000.00. Excellent condition	\$65000.00
Jamieson Model 65 Ektachrome ME 4 35/16mm Film Processor. 6 feet per minute. For 5038, 5256, 5257, 5258 or 110, 126, 135 Films. 220 volt Single or Three Phase, 50/60 Hz. Sold new \$11,900.00. Good condition	\$7150.00

## PROJECTORS

Siemens 16mm Interlock Mag/opt record/playback	\$2250.00
B & H 16mm Specialist. Proj.	\$ 295.00
B & H 16mm 185. Proj.	\$ 275.00
B & H 16mm 285. Proj.	\$ 395.00
B & H 16mm 385. Proj.	\$ 425.00
B & H 16mm 302, mag/opt. Proj.	\$ 695.00
Kodak Pageant AV-256-TR. Proj.	\$ 995.00
L & W 224A 16mm Data Analyzer	\$ 550.00
RCA 1600. Projector	\$ 295.00
Siemens 16mm Interlock, playback only. As is	\$1695.00
Graflex 16mm opt. only. Proj.	\$ 495.00
MP-30 35mm w/lens, stand, speaker	\$2695.00
MP-30 M 35mm Mag Interlock w/lens, stand, speaker.	\$4250.00
Simplex Pair 35mm XL PAC Sound Head with change over, and pedestals	\$8495.00
Century Pair 35mm Model C heads w/sound heads and changeover	\$6950.00
Century 35mm MSA w/Knisely rectifiers (Pair)	\$11500.00
Norelco 16mm Proj. w/Hughes 2500W xenon, solid state power supply (only 500 hrs); pair with pedestals and changeover. Like New. New Price \$22,000.	\$12750.00
Elmo 16mm Portable Arc Projector	\$2295.00
Right angle prism projector attachment	\$ 125.00
Super Vision image enlarging projection lens	\$1795.00

## EDITING

Peterson 35mm Precision Cue Punch	\$ 45.00
Moviola URS speaker/amp	\$ 65.00
Schoen Model 1962 35mm Film Tape Splicer	\$ 75.00
Ceco 16/35 Combo Syns Block w/2 counters, 2 gang	\$ 200.00
Robot II automatic 35mm film splicer w/ POS-NEG pins	\$ 299.00
Precision Sound Reader Mod 800 Opt/Mag 16/35mm	\$ 225.00
Moviola 16/35mm Butt Splicer w/Interchangeable Blocks	\$ 200.00
Veeder Root Footage Counters (New)	\$ 30.00
Moviola 16/35 Core Adapters	\$ 6.00
Maier Hancock 16/35 Hot Splicer (Rebuilt)	\$300.00
Maier Hancock 8/16 Hot Splicer (Rebuilt)	\$285.00
Moviola Bulk Degausser	\$195.00
16mm SMPTE Std Buzz Track PH22.57	\$ 75.00
Super 8 Academy Leader, 400' roll	\$ 25.00
Super 8 Split Reels	\$ 8.00
16mm Rivas Style Butt Splicer	\$ 65.00
35mm Vintage 3 Gang Timer	\$125.00
Satellite Mag Sound Reader	\$ 75.00
Cine Pacer Motorization Kit	\$200.00
Neumade Old Style 16mm Titewind w/Base & Spring Rewind, (4) Separators	\$ 75.00
Neumade Editing Bin Bags, cotton	\$ 15.00
Editing Table, Punched & Drilled	\$140.00
Editing Table "Acmade" Cut Out w/ Bin Liners	\$ 200.00

## Sale Price

Moviola 35mm Library Reader/Viewer Upright w/ (Bullseye Head) 8 1/2 x 11 Viewing Screen Reel Arm & Condenser Spindle, Foot Pedal (Model M77-1-B) DPV	\$1695.00
Moviola 16mm Model UL-20-CS, L-20 Upright Editor w/Reel Spindles Composite Opt/Mag Head, Litewell, Rebuilt, Reconditioned	\$2995.00
Moviola 16mm L-20 Table Top Viewer with Reel Spindles	\$1195.00
Moviola 16mm K-20 Table Top Viewer w/o Reel Spindles	\$ 695.00
16mm 2 Gang Sync Block w/HRS/MINS/Secs Timer	\$ 95.00
16mm 1 Gang Sync Block w/HRS/MINS/Secs Timer	\$ 85.00
Neumade Dynamic Rewinds w/Brake	\$175.00
HFC 16mm 6-Gang Sync Block	\$295.00
J & R 16mm 4-Gang Sync Block	\$125.00
J & R Super 8 3-Gang Sync Block	\$ 95.00
Neumade 16mm SDS Guillotine Wrap-Around Splicer	\$125.00
Film-o-Hand Edit-Ready 16mm Trays	\$ 8.00
16mm Pro Jr Viewer w/Veeder-Root Counter Re-conditioned w/o Cable	\$150.00
Griswold Model 816 Cement Splicers	\$ 50.00

## LIGHTING

Mole-Richardson Tener Spot w/ crank up stand	\$ 575.00
Mole-Richardson 750W	\$ 60.00
Bardwell McAllister 2KW	\$ 70.00
Colortran 10" ring focus Fresnel	\$285.00
Colortran Vari-10A	\$125.00
Colortran Vari-Beam 100W	\$ 40.00
4-light "FEY" fixture; uses DWE or FBE lamps; individual switches. New value \$179	\$ 80.00
Colortran 2K Soft Light	\$175.00
Colortran Multi-Broad	\$130.00
Colortran 2K Broad	\$125.00
Colortran Set Lite	\$ 85.00
Colortran Mini-Lite 10	\$ 80.00
Colortran Multi-10	\$115.00
Mole-Richardson 5K w/ stand	\$250.00
Mole-Richardson 5K only	\$110.00
Mole-Richardson 2K w/ stand	\$190.00
Mole-Richardson 2K only	\$ 90.00
Mole-Richardson Solar Spot #407	\$ 85.00
Mole-Richardson Solar Spot #104	\$ 30.00
Goodyear light source for APQ correlator	\$3195.00
Honda Generator 300W 115VAC/3 amp or 12VDC/8 amp (needs minor repair)	\$ 195.00
42" x 42" Reflector	\$ 95.00
Bent leg stand 35" to 100" (NEW)	\$ 75.00
Compact stand 20" to 89" (NEW)	\$ 55.00
Master stand 40" to 135" (NEW)	\$ 85.00
Master stand castered 44" to 139" (NEW)	\$ 95.00
Century gobo stands, partially complete. As is	\$ 25.00
Cine Stand Castered 46" to 94"	\$160.00
Mini-Light Boom 29" to 81" (NEW)	\$110.00
Alu-Stand 45" to 124" (NEW)	\$160.00

## CAMERA SUPPORT AND GRIP

20th Century-Fox Stage Crane, powered by self-contained rechargeable batteries, offers a variety of camera positions from 92" off ground to floor level. Unit is 8'10" long, boom arm 160" long, has 45" swing. Weight 1750 lbs. Less weights, batteries and chargers	\$5500.00
Thomas gear head. Rebuilt	\$2500.00
Quick-Set Gibraltar friction head w/legs & dolly	\$1195.00
Mitchell 35 friction head	\$475.00
Quick-Set pedestal dolly	\$495.00
Miller F fluid head	\$325.00
Ronford F2 fluid head w/alum legs	\$765.00
B&S Mitchell Std. tripod legs	\$295.00
Miller 205 ball tripod legs	\$395.00
O'Connor Model 20 fluid head w/ Foba Mini-Pod	\$1395.00
Pro Jr tripod w/ball casting	\$125.00
AGE Mini Pan and Tilt gear head	\$550.00
Worrall Gear Head. Rebuilt. New price \$6000	\$3500.00
Kenyon KS-4 anti-vibration gyro stabilizer	\$ 695.00
Gear/Tilt Pedestal Stand for Process cameras and/or projectors	\$ 850.00
Westinghouse HC101 Anti-Vibration isolation mount with mounted sensors for pan, tilt, and yaw	\$1250.00

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# A REPORT ON EQUIPMENT SHOWN AT THE SMPTE CONFERENCE

A mushrooming proliferation of exhibitors and their wares brings a flood of motion picture and video equipment for hands-on inspection

By ANTON WILSON

The SMPTE 1979 Conference in Los Angeles was the largest yet. There were more technical papers than ever before, yet the most visible proof of growth was the equipment exhibition. Exhibitors booths not only filled the main exhibit hall, but also fully occupied the entire main ballroom of the Century Plaza Hotel. Even this large area was not sufficient to accommodate all the exhibitors, and virtually all the meeting rooms on the entire floor had to be called into service as mini-exhibit halls. Despite these measures, the overflow continued, and one lighting manufacturer had his exhibit in the corridor while two others exhibited in what appeared to have been a utility closet. Without exaggeration, every nook and cranny of the Century Plaza convention level was utilized for exhibitions, with the possible exception of several phone booths and the rest rooms.

The sheer size and quantity of the exhibition was certainly matched by its con-

tent. It seemed that almost everywhere you turned there was some new device or another indication that technology is still advancing at a feverish pace.

The SMPTE is the most important video/film conference in the country. Individually, however, the video industry places the NAB convention as its most important show and the film industry shares its love with both FILM 79 and *Photokina*. As a result, most new items have already been premiered at the aforementioned shows and items currently under development are probably being readied for introduction at the 1980 NAB and *Photokina* respectively. This realization in no way minimizes the importance of the SMPTE convention. The SMPTE actually takes on an even more significant role by bringing *all* that's new in both film and video under one roof. It should be realized, though, that my review of the SMPTE exhibits will be selective, as many items at the show

have been previously introduced and reviewed by the *American Cinematographer*.

Because of the vastness of these shows, I have developed the habit of spending the first day on a cursory tour of the complete exhibition in order to form an overall impression and determine industry trends. Only after this do I then attempt the detailed, in-depth coverage of the show. It makes sense to use the same principle and format for this report.

## OVERALL TRENDS

Video obviously has become a major element at the show and many of the new developments to be mentioned concern the television format. However, one of the definite trends at the show was a fusion of film and video elements and the introduction of "film style" techniques for video operations. This was particularly evident in the area of time code.

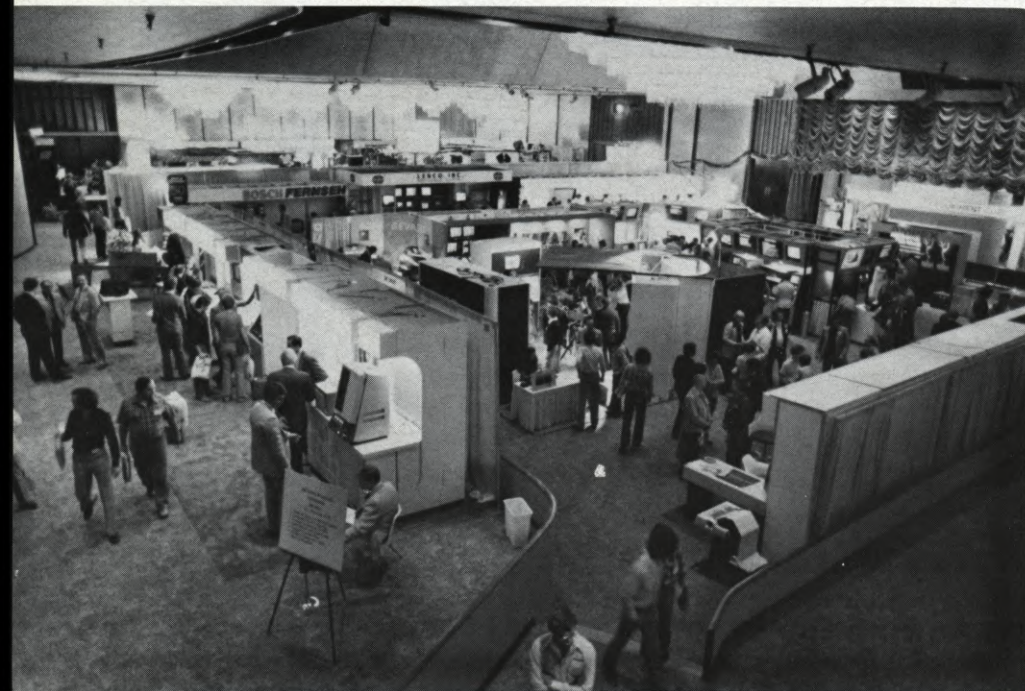
HMI lighting continues to arouse interest, and technology in that sphere continues to move forward, particularly with respect to ballast design.

The video industry is moving steadily ahead with emphasis on computer and "film style" editing and very sophisticated digital effects devices. Of most interest to the cinematographer, the video industry is constantly developing new generation cameras: three new and intriguing cameras were introduced at this SMPTE.

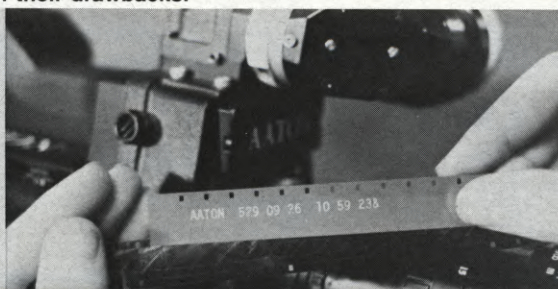
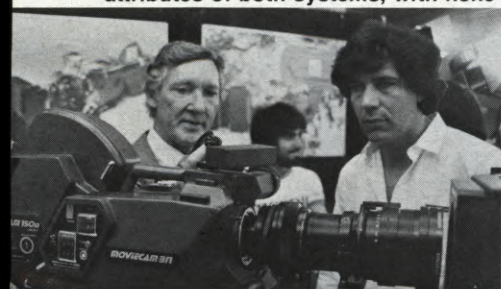
Lastly, and maybe most important, the film/video industry seems to be thriving so well, that there were a myriad of small companies showing all kinds of fascinating accessories for every aspect of production.

## FILM CAMERAS & ACCESSORIES

The high interest for the new Moviecam 35mm camera has not diminished at all. Even though the camera has been previously reviewed, I still feel impelled to comment on its well conceived design, its extensive system of accessories and



(ABOVE LEFT) A section of the Grand Ballroom of the Century Plaza Hotel devoted to equipment exhibits. (BELOW LEFT) "Scoop" Clapp demonstrates the new Moviecam system, a camera that is virtually silent, yet can be hand-held. (CENTER) A new Aaton system prints time code information directly onto the full-coat. The picture film is coded right in the camera. (RIGHT) Oxberry introduced a new computer age light control. In actuality, it is a subtractive type, but, utilizing electronics, it operates as if it were an additive device. Thus it has the best attributes of both systems, with none of their drawbacks.







(LEFT) The new LTM Ambiarc 200. By mounting the bulb axially, instead of side-to-side, LTM was able to almost double light output, while making the overall unit even smaller. (CENTER) Arriflex showed a new high-speed version of its 16SR, a remarkable new image stabilizer that weighs only 6 pounds, an entire line of HMI lights, the new line of Sachtler tripods and, of course, the Arri 35 III and 35BL cameras. (RIGHT) Coherent Communications time code system for Cinema Products GSMO and the Nagra recorder.

its virtually silent operation. Distribution of the new Moviecam has been set up in New York City.

Arriflex has introduced a hi-speed version of their popular 16SR camera that is capable of frame rates from 5 to 150 fps, using the standard variable speed control. Of course it is also capable of 24 or 25 fps crystal control which makes it a most flexible instrument. The hit of the Arriflex exhibit had to be the new Arriflex Image Stabilizer. This new device is an outgrowth of the latest aerospace technologies, employing precise gyroscopic elements. The unit is extremely compact and lightweight, weighing less than 6 lbs. It uses a pair of precision front-surface mirrors, one fixed and the other suspended in a double gimbal controlled by gyroscopic elements. The use of the front-surface mirrors ensures an optimum "virgin" quality image, as the light path does not pass through any glass or liquid materials whatsoever. This low inertia design responds to movements from as little as 1 Hz up to extremely high frequencies and can damp forces as high as 6 G's. Unlike floating camera high inertia systems, the Arri Stabilizer is very effective in helicopter and moving vehicle applications requiring longer focal lengths where vibrations and jolts are the biggest problems. Arri showed a very impressive film demonstrating the unit's effectiveness from both helicopters and motorcycles, as well as hand-held. The Arri Image Stabilizer can be used with all 16mm film and video cameras with focal lengths of 35mm and up and all 35mm cameras with focal lengths of 75mm and up.

Arriflex also showed their beautiful follow focus mechanisms for the 16SR, 35

III and 35BL as well as their complete line of HMI lights, including the portable battery-operated 200-watt unit. Arri also showed a new director's finder, and the complete line of compact Sachtler fluid head tripods.

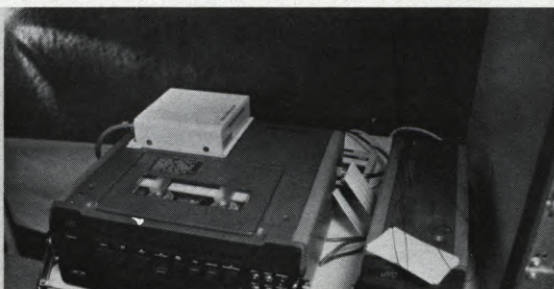
Eclair exhibited their full line of cameras including some new items. The ACL is now available with a completely orientable viewfinder and an onboard battery. The NPR now has provision for a video viewfinder.

The Aaton cameras enjoy a healthy following due to their fine quality, anatomical contours and innovative design. They have developed a new method of time

coding which is quite ingenious. The master clock synchronizes cameras and recorders. Thereafter, all camera footage is marked in either time code or *actual clear arabic figures* or *both*. The Nagra puts down a signal burst at the beginning of each take and thereafter only pilotone is necessary. On transfer, the pilotone signal is actually a time code when referenced to the initial burst code. During transfer of sound, Aaton has perfected a method of ink numbering the full coat with clear time figures (see photo). As a result, the editor now has both film and sound with eyeball readable time code  
**Continued on Page 1240**

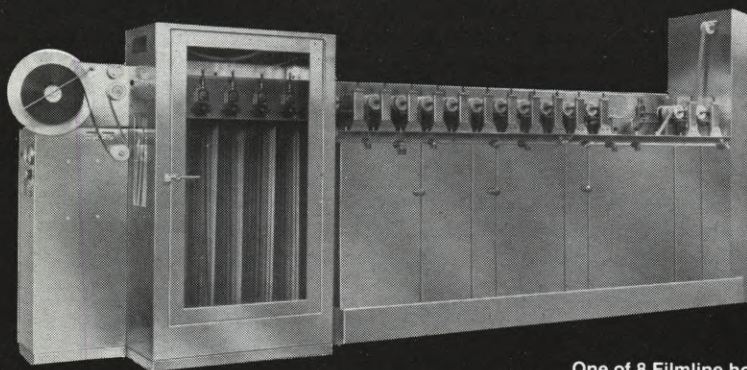


(ABOVE LEFT) The Twenty Fourth Frame flatbed now has a pitch compensator that keeps voices sounding normal at any speed from 1/2 to 2 1/2 times the sound rate. (RIGHT) The Matthews Crank-O-Vator can hoist a 200-lb. light more than 12 feet. (BELOW LEFT) The Chyron video title and graphic system can create complete color graphics, including logos, with the push of a few buttons. (CENTER) The Yves Faroudja "Record Booster" attached to a JVC 4400 3/4" VTR (see story). (RIGHT) The new Fujinon focusing module. This amazing unit can attach to most Fujinon zoom lenses.



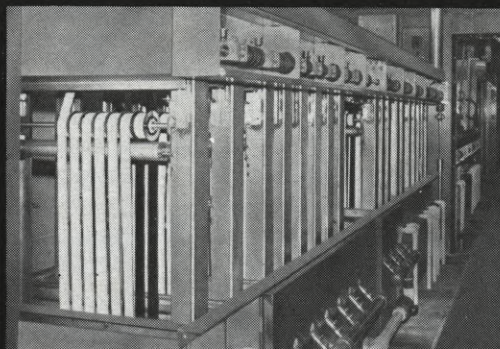


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Micro-Demand is a dynamically tension-controlled friction film transport system that operates effectively at minimum tension and with complete reliability. When used with Filmline Feather-Touch film spool "tires" it transports 35mm, 16mm and single strand 8mm film interchangeably and without adjustments even when these films are spliced back-to-back.

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No other competitive processor or film transport system commercially available has ever achieved the operational speeds and proven reliability of Filmline Micro-Demand Processors.

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<b>Versatility</b>	Any speed, any process.
<b>Reliability</b>	Rugged construction, quality materials and sound engineering. Always ready when you are!
<b>Flexibility</b>	Any format 35mm, 35/32mm (1-3), 35/32mm (1-4), 35mm 5R S8, 16mm — 70MM-105MM etc.
<b>Dependability</b>	Can stand the gaff of long, continuous, top speed runs with "Zero-down-time."
<b>Credibility</b>	Ask the labs who own them. Most of them own not one but several.
<b>Maintenance</b>	Exclusive Maintenance Monitor tells when and where the machine needs attention. Significant savings assured.
<b>Performance</b>	Every Filmline machine is backed by a superb performance record compiled in over 25 years of continuous service to the industry. Twenty five years in the forefront of processing machine design and innovation.

- ☐ Push-Button operation, and reliability allows operator to perform other functions while the machine is running!
- ☐ Automatic compensation for elongation and contraction of film during processing cycle.
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- ☐ All film spools use standard bearings or bushings.
- ☐ Entire upper film shaft/roller assemblies easily removed. No tools needed.
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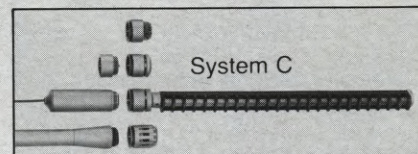
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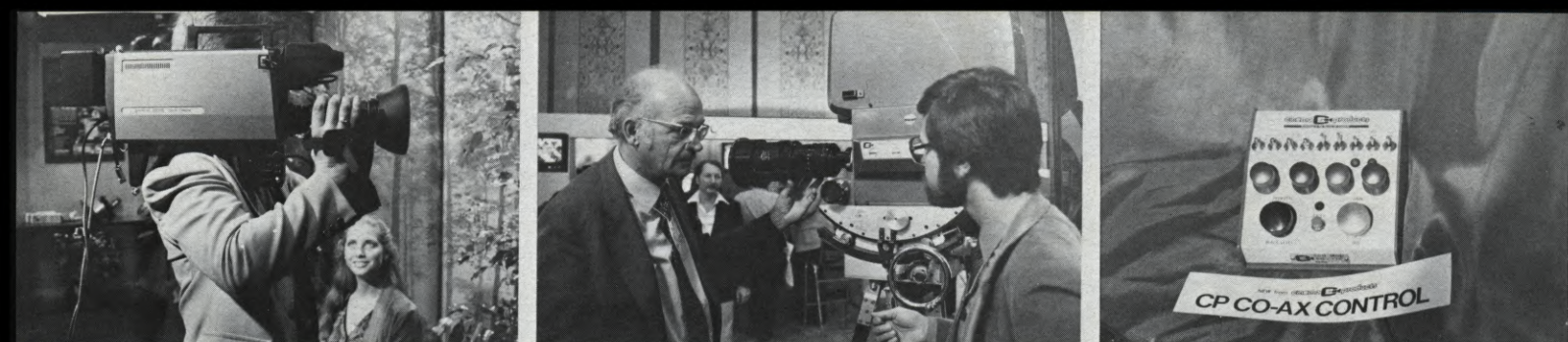
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(LEFT) New Hitachi FP-40 camera 3-tube Saticon with prism optics, built-in battery system at about half the price of similar broadcast type cameras. (CENTER) The new Angenieux 25mm-to-625mm zoom lens for the 35mm film format. (RIGHT) Mini-CCU of the Cinema Products CO-AX camera control system. The camera can be adjusted from almost a mile away over a single co-axial cable (see story).

# **EQUIPMENT SHOWN AT SMPTE CONFERENCE** Continued from Page 1237

figures. This new coding technique along with the many other innovative aspects of the Aaton system (including simple system sound) make this one of the most well designed and versatile 16mm cameras available.

Aaton also has a new 35mm camera. Although not shown at SMPTE, the camera is very similar in concept and appearance to the 16mm camera and weighs only 11 lbs. The noise level is approximately 33 db. The prototype has been in use since April of 1979.

Bolex exhibited their complete line of 16mm and 8mm equipment including the now multicoated Switar lenses and the 5.5mm Aspheron lens.

There were no new surprises in the way of optics, with two possible exceptions. Angenieux has adapted one of their television designs to create an interesting 25x zoom lens for 35mm applications. This multicoated lens weighs under 11 lbs. and can zoom from 25mm to 625mm. The lens is a T/4 from 25mm to 100mm decreasing to a T/8 at 625mm. It is available in Arri, CP and MN mounts.

This next item may not thrill many cinematographers but it is nonetheless an interesting device. Fujinon showed an *automatic lens focusing* device to be used in conjunction with many of Fujinon's ENG lenses. The system was amazingly accurate and could actually "follow focus" as an object moved toward or away from the camera. The system obviously has its limitations, however. It is sure to have specific applications in

video.

Schneider has a new ENG lens, a 15x 8.5-125mm with built-in 2x extender (17-250mm). It is an f/1.7 through 95mm, diminishing to f/2.1 at 125mm. Weight is 2.2 Kg.

Image Devices, as usual, had a booth full of all kinds of goodies which they manufacture or distribute. Included was their I.D.I. micro-mic (measuring only 5/16" x 11/16" x 3/16"), the Micro Mixer, the Data Slate I LCD electronic slating system, as well as many other sound items and accessories. I.D.I. also specializes in underwater housings and lights, as well as two-way communicators. They are also distributors for Jensen electronics and Samcine Rigidised cases.

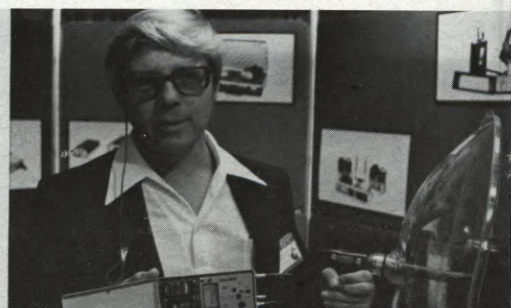
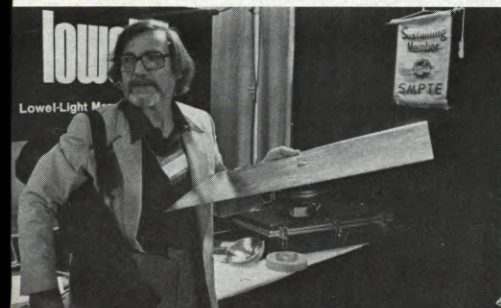
Film-Technik of Munich, West Germany, displayed some very interesting and beautifully machined items. These included a unique mechanical remote follow-focus device particularly well suited to hand-held cameras and tight situations. The device works with virtually all popular 16mm and 35mm fixed focal length and zoom lenses.

The Film-Technik manual *Fluid Zoom Drive* is similar in action to a fluid pan head. The unit has adjustable torque to provide smooth manual zooming up to a claimed 6-minute zoom. It is available for most zoom lenses 16mm and 35mm. Film Technik also showed a quite impressive and exquisitely machined *Universal Lens and Camera Test Bench with Reflex Auto Collimator*. Anyone interested in such a device should definitely consider this elegant item.

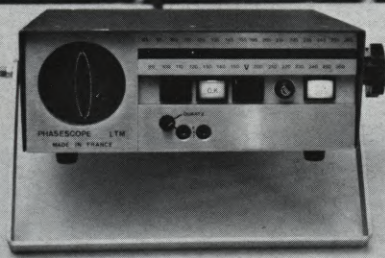
Mitchell Camera has introduced a new lightweight geared head. Weighing only 44 lbs. it has three speeds in both tilt and



(ABOVE LEFT) New Philips synchronizer locks two multi-track audio tape machines to a VTR by means of time code. This permits film-style mixing or editing similar to a flatbed with a picture and three sound tracks. (BELOW LEFT) Lighting legend Ross Lowell demonstrates his new reflector and over-the-shoulder light stand carrier. (CENTER) The new diode gun tube from Amperex. This new design with low capacitance contacts will be directly interchangeable with 2/3" Plumbicons. (RIGHT) Bob Swintek demonstrates his new wireless microphone with earphone on its transmitter that allows sound man to hear sound he is sending.







(LEFT) The LTM "Phasescope" for checking frequency and voltage of mains when using HMI lights. (CENTER) Image Devices (IDI) displayed its many practical and ingenious inventions, from micro-mixers to underwater camera housings. (RIGHT) The new Steenbeck time code reader system. It can locate and automatically sync sound and picture.

pan with ratios of 1:1, 1.5:, and 3:1. The unit incorporates a fully adjustable 0° to 30° lift plate which eliminates the need for wedges to obtain extreme angles of elevation or depression. Tilt range is 35°, 60° with lift plate fully extended.

F & B/Ceco is worldwide distributor of the Hajnal Snorkel lens. This super lightweight device can be fitted to any 16mm, 35mm or video camera, as well as 35mm SLR still cameras, and can accept any Arri mount lens from the 5.7mm on up, including zoom lenses. This snorkel can provide limitless possibilities for camera positions, such as out of car windows, street level shots from below ground or inside shots of machinery.

Everything seems to be portable these days and there were certainly plenty of batteries being displayed at the show. Cine 60 has a new fast charger that can operate from a vehicle's 12-volt electrical system. Both Schneider and G&M are now using sealed lead acid cells. While these cells are bigger and heavier than NiCads, they do offer some economical advantages. Anton/Bauer has a complete line of both silver and NiCad quick-change modular batteries, including quick-change mounting brackets for most ENG cameras. Frezzolini also exhibited their complete line of batteries and accessories including a new on-camera light featuring a built-in dichroic filter.

Cinema Products has a new "Camrapromtor" that weighs under 4 lbs. and can mate with any motion picture or video camera. The copy is moved by a silent servo motor controlled by the photographed subject, or a third person.

Coherent Communications has a complete range of sound mixers and

accessories including wireless microphones. Of particular interest is their time code system for both the Nagra and CP GSMO (see photo).

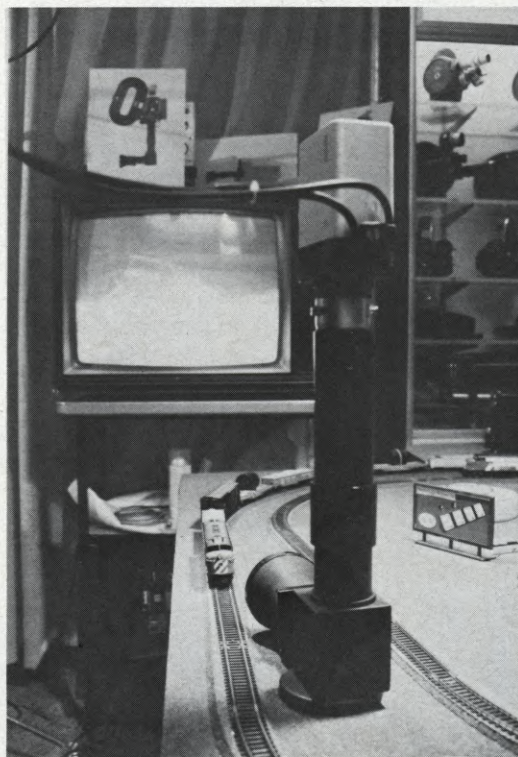
Swintek demonstrated a new model wireless microphone system that includes an ear phone output at the transmitter so the boom man can hear when his shotgun is aimed optimally.

Westec Audio Video has a new super-miniature microphone designed to be compatible with most wireless systems.

Earlier I mentioned the trend of film/video interfaces and "film style" video

production. This is evident in the video editing systems by Convergence, Video Media, CMX, Sony Panasonic and JVC. More specifically, Philips has come up with a new device (see photo) called a "Television Audio Post Production Tape Synchronizer." Most film editing machines have at least two and more often three sound tracks, yet in most video editing facilities there is no provision for syncing external audio tracks. Enter the Philips Model TS-605 which can slave two or more multitrack audio machines to a VTR. This device is quite sophisticated

Continued on Page 1252



(ABOVE LEFT) F & B/Ceco's snorkel camera attachment fits any 16mm, 35mm or video camera and accepts any Arri mount lens, 5.7mm and up. (RIGHT) Ron Lautore of Ferco demonstrates the new Ianiro "Bambino" fresnels. (BELOW LEFT) The Toshiba portable field production center is like a studio in a box. (CENTER) New Mitchell geared head with built-in adjustable wedge plate. (RIGHT) The new "MODULEUR" ballast system from Cremer claims to be a totally flickerless HMI system with reduced size and weight and the ability to dim light output.





## MINI-WORLD OF "1941"

Continued from Page 1217

did have people inside on radio-control, waving their arms hysterically and moving about.

We also had extra aircraft models on hand at Hollywood Blvd. This was due to our experience on the Ocean Park set. Steven had Kelso's miniature P-40 fly closer and closer to the ferris wheel—until it finally smashed into it! Fortunately we had an extra on hand, but we knew that an even more spectacular aerial sequence was being planned for the Hollywood dogfight. The planes had a four-foot wingspan and the Blvd. was about eight feet across. A two-foot margin on both wing tips sounds fairly safe until you consider that the planes are often charging at each other while performing barrel rolls on fire. There were a few expected mid-air collisions, but we always had standby aircraft at the ready.

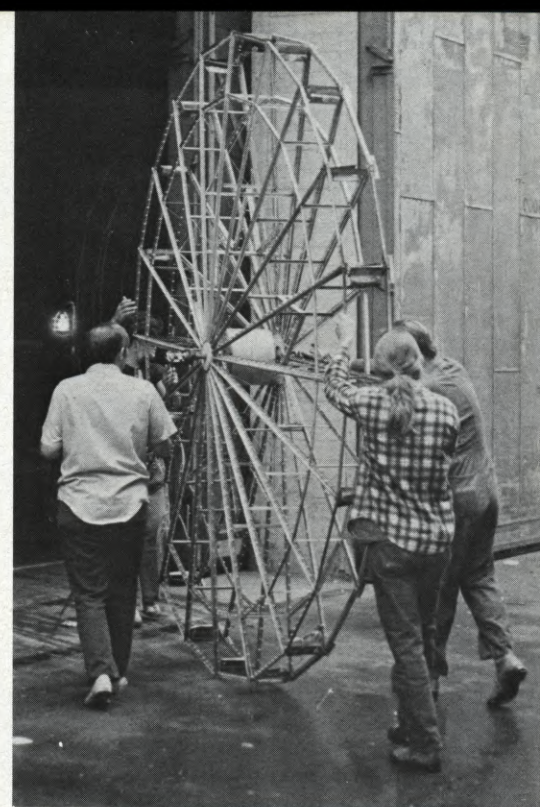
The submarine model was the only thing that we didn't have an extra one of, and it was built so well that we really didn't need one. In one instance, the water gauge in the MGM studio tank was left open overnight and the submarine model moored alongside it just sort of sank down with the water level and crashed into a metal camera piling we had in the bottom of the tank. There was minor damage done, but it was just one of those things. You can never have enough of what you make.

The dogfight over Hollywood Blvd., which involves two aircraft chasing each other and firing away, was done pretty much according to the old studio method, if I may call it that. In other words, the aircraft were moved on wires, rather than by means of a motion-control matting

system. That was probably the biggest timesaver on "1941". Almost all of the motion that, in a space movie, would have been done *a la* motion-control, was shot in one pass with one camera. The only problem was that sometimes in the middle of a take the batteries that ran the propellers would die or the ignition charges for the pyrotechnics wouldn't go off. It took a while to rig the planes from angle to angle, but otherwise everything went really smoothly.

We built a miniature of the San Fernando Valley up to the Wilshire area that was approximately 120 x 60 feet. In preparation for this, we got the local city ordinance maps to find out what the zoning was. We traced it all out to the approximate scale and discovered that the houses were the size of "Monopoly" houses. We had people cutting out little houses—thousands of them—stamping windows in them, putting in the shrubbery and, in general, making the biggest "Monopoly" set ever seen. This was shot in forced perspective, with some houses bigger near the camera. This set was used primarily in the trailer being seen in the theaters, where the numbers, "1941" break through a breakaway area in this terrain and come up out of the ground.

There's a lot of luck involved in working with miniatures, especially when it's important to get a certain effect in one take. A good example is the sequence in which the ferris wheel breaks loose and rolls off the end of the pier. We completed construction of the ferris wheel, with all of the miniature lighting functional, just in time to meet the deadline. We had it flying down the pier from an overhead dolly, as a man went running along the side with a simple shiv and pulley system, tearing out the planks beneath the ferris



Technicians roll the miniature ferris wheel onto the set, indicating its scale. The frame, constructed of steel, was ringed with miniature lights.

wheel as though it was splintering the pier.

We thought everything was going fine when we came in that morning and made the first take, but Steven was disappointed with the way the wheel hit the water. So it was decided to make a second take as soon as possible. The ferris wheel had to come up out of the water (our frogmen went down and pulled it up) and we had to change all the lights on it, because the lights were supposed to stay on underneath the water. This was very difficult, considering that there was a large power cord going into the water at the same time.

In about four hours we rigged the ferris wheel again, rigged the pier again, special effects planted primer cord charges in the water and on the end of the pier, and by six o'clock that evening we were ready for a second take.

I must say that the second take did look much better than the first take, but it sure was a pain getting there. I'm glad he didn't ask for a third take, because when the ferris wheel hit the water the second time, the primercord charges really bent the steel. It would have been impossible to use that same wheel again, although we did have a second wheel standing by.

It just pays to be prepared when you're working with a creative person like Steven. He won't be locked down by what he's supposed to see. He'll take a look and say, "This looks better. We'll turn it around this way." You always have to be

The miniature set of Hollywood Blvd. involved wooden forms and thousands of cartons provided by various suppliers into which windows were cut to simulate the facades of the many buildings shown. This sequence was an afterthought and, since it had not been originally scheduled, had to be constructed on a crash schedule.







A bird's eye view of the miniature Hollywood Blvd. set, complete with searchlights. Buildings were equipped with thousands of "practical" lights.

prepared—like a gambler has to have a little extra in his hip pocket, just in case.

Our group had to become a "Santa's Workshop," working at times around the clock to meet the shooting schedules. We developed our own crew of dedicated miniature specialists who always thought in terms of scale. Everything was constructed through the eyes of a nine-inch-tall person. Even knots in wood were cut off so they wouldn't give our scale away.

No matter how well models are built, the naked eye sees one thing and the camera another. Only through the talent of William Fraker did these miniatures truly come alive. He created the atmosphere that put the viewer right into the set. Our highest commendations go to Mr. Fraker and his crew for making our work—our dreams—come true. ■

(ABOUT THE AUTHOR: GREGORY JEIN began his professional career by working on the MAGICAM process with Douglas Trumbull's company at Paramount. He was nominated for the Academy Award for his work on Steven Spielberg's *CLOSE ENCOUNTERS OF THE THIRD KIND*, for which he also created the Miniatures. His other Miniatures credits include the features *FLESH GORDON*, *VORTEX* and *LASERBLAST*.)



A technician, looking like a giant on a rampage, stands among the traditional Christmas decorations on the miniature Hollywood Blvd. set.



At first no eye-level shots were scheduled for the miniature Hollywood Blvd. set, but when Director Spielberg changed his mind, hundreds of tiny props had to be built almost overnight. (LEFT) The miniature trolley cars did not move, but radio-controlled people inside them did. (RIGHT) Greg Jein carved a miniature car and sent it to Universal Studios for vacuum forming so that many replicas could be made from it. The wheels came from a popular inexpensive toy. (BELOW LEFT) Ocean Park, as it looked from the Japanese submarine lurking off-shore. (RIGHT) All hell breaks loose as the submarine shells Ocean Park.





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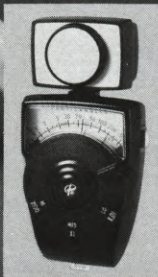
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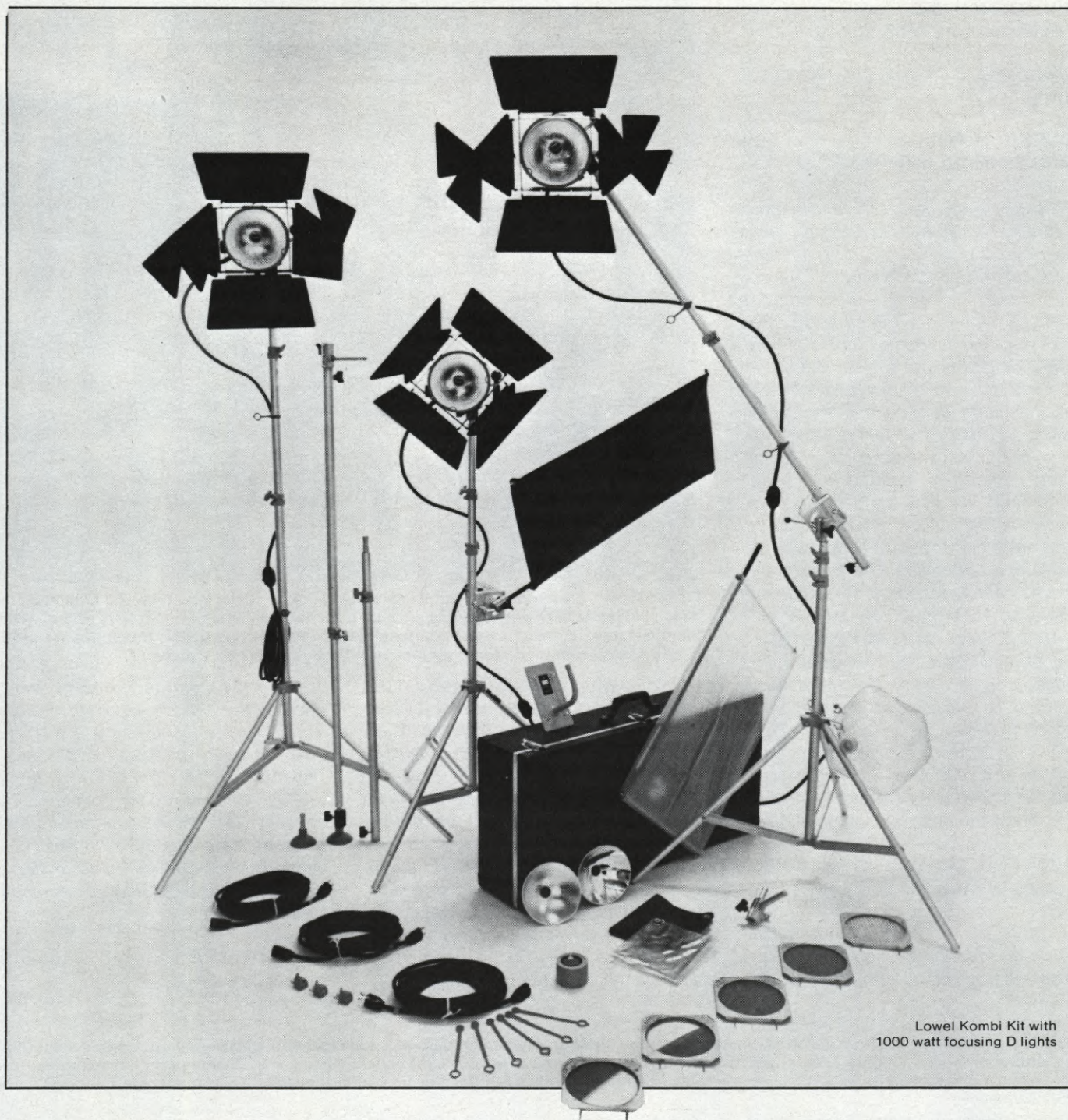
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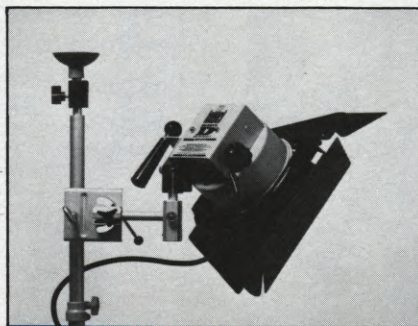




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# PHOTOGRAPHING "1941" Continued from Page 1211

happy with, but I think the audience is going to like it.

**QUESTION: What about the filter pack you mentioned before?**

**FRAKER:** That's very easy to talk about, because I really believe in what I call a filter pack. To me it is probably the most important element in giving you the look of a picture. It gives you that little edge that you cannot get any other way. The filter pack varies from picture to picture, depending upon the subject matter and the way you want the picture to look. The pack is made up of combinations of diffusion, fog filters, low contrast filters and color filters. I am speaking now of "color" filters, rather than "colored" filters. Colored filters will give you a certain look, but color filters allow you to play in the gray areas that nobody can deal with. We use a lot of coral filters. That's a color that the labs can't reproduce. We used coral filters on *LOOKING FOR MR. GOODBAR*, *HEAVEN CAN WAIT* and *"1941"*. On *HEAVEN CAN WAIT* we used a filter pack made up of a Low Contrast 2, with a Mitchell B diffusion and a Coral 1. On *"1941"* the filter pack consisted of a Fog 2 and a 1/2 Coral, no diffusion. We needed the strength of the Fog 2 to help smooth out the smoke we were blowing in, especially in the miniatures sequences.

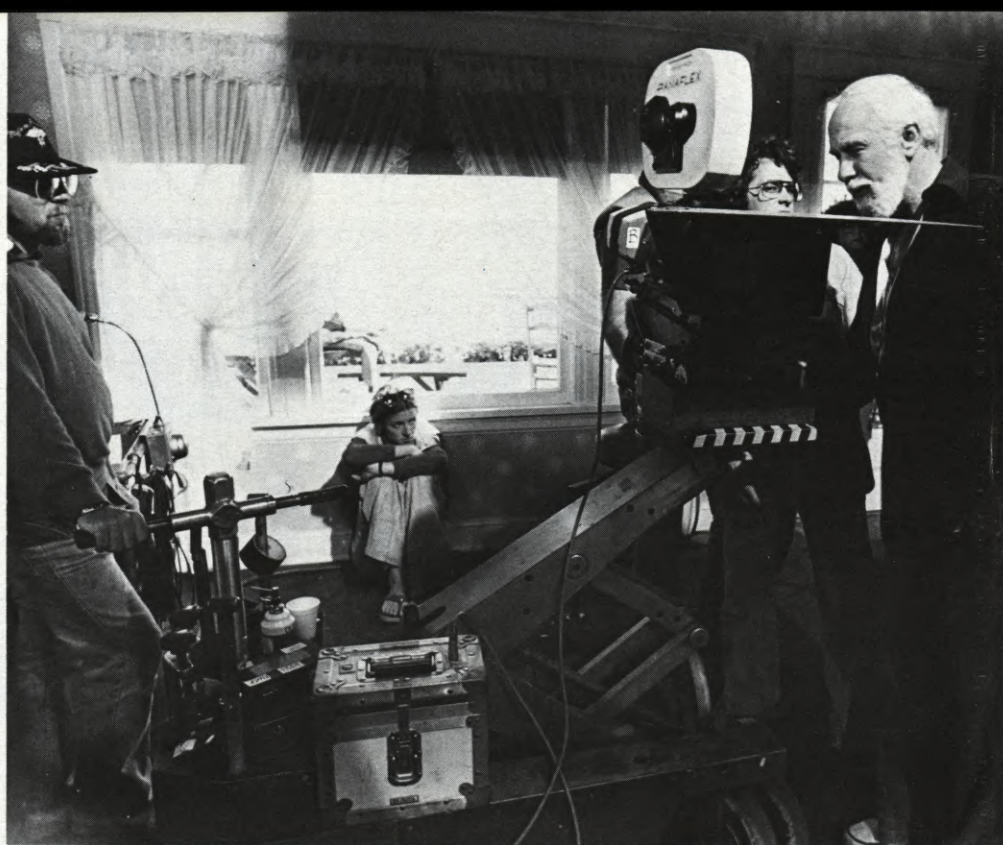
**QUESTION: Can you tell me why you especially favor the coral filters?**

**FRAKER:** The fact that it is a tone that the labs can't reproduce is sort of exciting. It means that you have an area that you can

control. When I photographed *THE HERETIC* we really used the coral filters extensively and heavily. Now when we begin to use a lot of blue light in shooting interiors and we feel that it is a little cold, we can't lower the voltage because that's too extreme on the lamps. But by adding something in front of the lens, you begin to take over the lower end of the scale and you start to blend your tints whereby your faces will be correctly exposed, but everything else begins to be colored, in a sense. To the degree that we want the facial tones to take over we

go from 1/4 Coral to 1/2 Coral, which gives us the tints, to full or No. 5 Coral, which completely takes over. I don't use them on every picture. I just finished *HOLLYWOOD NIGHTS* for Floyd Mutrix and we used only a Low Contrast 2, because we didn't want to detract from the quasi-documentary, realistic look. I just wanted to blow those lights a little bit because there were a lot of neons and stuff like that.

**QUESTION: A cinematographer of**  
Continued overleaf



Fraker checks a camera angle inside an actual home, specially built for the filming on the beach, which is later destroyed by a 40mm gun that runs amuck through its rooms. When filming inside the structure was completed, the house was purposely toppled over a cliff, a circumstance that made for a spectacular (though One Take) scene.

(LEFT) In a rare departure from the norm, Fraker directs the photography of a miniatures sequence. Almost always in Hollywood miniatures are photographed by highly specialized second unit camera crews. In this case, having the same cinematographer enhanced the consistency of images. (RIGHT) The always-affable Fraker chats with a feature player enacting the role of a star-spangled hostess in the USO sequence.





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your versatility is obviously able to shift comfortably from one lighting style to another, as the picture dictates, but do you have a certain style—or better yet, a philosophy—of lighting that you especially favor?

**FRAKER:** Well, generally—and I've said it 500 times—I'm a romanticist. So therefore, I want everybody to look beautiful. A lot of people disagree with me. Good for them! I love that kind of give and take. But I believe that with faces 40 feet high in a scene they should look terrific, and that's my whole approach. I don't believe in realism because, as I've said before, I hate the reality of reality. What I hate about reality is that it's real. I don't want anything real. I want to spend \$5 to go into the movie and escape. I want to be taken away from all my problems. If I want to leave the problems I have at home—sitting there in front of the TV, drinking beer, listening to the kids scream and the dogs barking and the wife washing the dishes—I'm going to say, "Let's go out and go to a movie." I don't want to go to a movie and see a guy sitting there drinking beer, with the kids screaming and the dogs barking, etc. I want to see Cary Grant and Victor McLaglen and Douglas Fairbanks, Jr. jumping on an elephant and going for the tower of gold. That's what I want. I want the adventure. I want the escapism—and that's what I call romance. I believe in it, so therefore, in lighting, I work in that direction. We make women beautiful and men good-looking and the background romantic. Any sharp lines we eliminate; we want soft lines back there. I want to create illusions.

**QUESTION:** In **MR. GOODBAR** there were sequences that called for raw realism and you really made it look realistic. What about that?

**FRAKER:** But very romantically done—if that makes any sense. In **GOODBAR** we were shooting in Diane Keaton's room for 25 days. Each sequence had a different look, a different approach. There were no hard lines. The blue moonlight coming in through the windows was a nice soft blue. The yellow light coming in from the street light through her windows was a nice soft yellow. There were soft lines, no hard shadows. The overall ambient light that lit up the whole room when no lights were on was soft. It gave me a chance to be a little romantic. The bars and discos were something different. The end scene where she was killed, with all the strobe light and so forth, was very harsh and strong. People who combine hard and soft, I think, are geniuses. But I'm a very



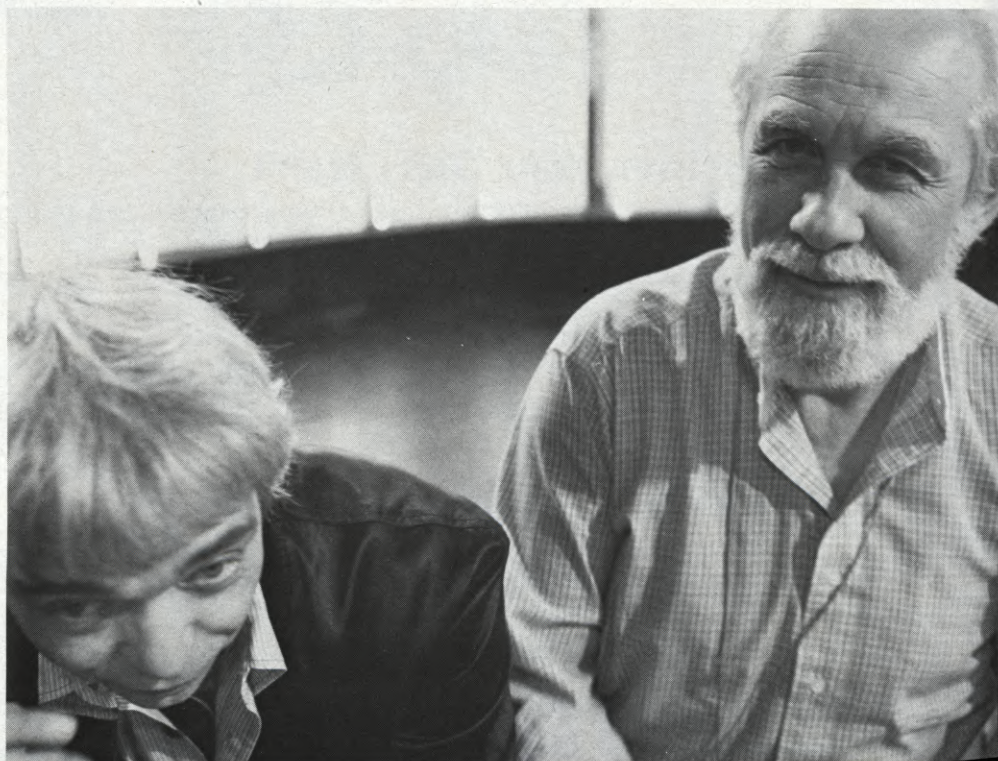
hard critic of my own work. People say to me, "You did **ROSEMARY'S BABY** and **BULLITT** and I thought they were terrific pictures." But what I remember about **ROSEMARY'S BABY** was how we tried to make the backings work and came up to only about 80 percent of our capacity, because the backings were lousy in **ROSEMARY'S BABY**. Whenever someone mentions my pictures, I think of all the failings in those pictures—what we tried to do and what we achieved and what we didn't quite do. You have a better shot at having more people say you're terrific in your work when you take the romantic approach.

**QUESTION:** I understand that you shot all the miniature sequences in "1941" yourself. That's quite unusual,

isn't it?

**FRAKER:** Yes, because normally you have a miniatures unit doing it. But it's difficult to maintain a consistent look in a picture when you have two units involved so closely. Of course, we had a great deal of help from L.B. "Bill" Abbott, ASC, who is one of the most extraordinary miniature special effects cameramen in the world. He allowed us to do what we wanted to do and helped us achieve the effects we wanted to achieve, drawing on his tremendous expertise and his many years of experience. He encouraged us and was really a pillar of strength. He even said our dailies looked terrific—which always helps.

**QUESTION:** What are some of the





things that you had to particularly watch out for, or pay special attention to, in shooting the miniatures—things that you don't ordinarily encounter in straight cinematography?

**FRAKER:** In straight cinematography the one thing you learn as a focus-puller or assistant cameraman is to work with low f-stops. By low I mean wide-open, whether that be f/1.8, f/2.2 or whatever. The eyes of the audience are attracted to three things. The first is movement. If something is moving on a screen your eye automatically goes to the movement. Number two, your eye will go to the person who is talking. Number three, your eye automatically goes to the hottest spot of light in the scene first. Once it goes to the hot spot, it then begins to scan the screen and stops where it wants to stop. Those three things are most important—movement, dialogue and the hot spot of light. Now, in following focus when you can't hold the depth, you have to pay attention to what is happening on the screen. If somebody is talking, you favor him. If somebody starts to move, you favor him. If a door opens in a black room, you go to the door because there's a hot hall light. You learn to work rhythmically with that kind of motion on the screen. That's what makes a good assistant. (We had a marvelous group of assistants—Ronnie Vargas, Steve Bridges and Richie Turner—who are magnificent in this area and pay attention to what they're doing). Now, on miniatures you very seldom have movement. You very seldom have dialogue. You do have the advantage of pinpoints of light, but if anything is out of focus in a miniature it looks like a miniature. It looks like what it is. So now you have to recreate the depth of field in order to pick up everything in relationship to what it would be in normal size. Which means you've got a problem. The problem is that of balancing lights in the foreground with lights 150 feet away down at the end which are simply pinpoints put up on a board in forced perspective to taper off to infinity. That's probably the toughest thing you have to photograph involving the ratio of balance of one light to another. Once you get that balance, you lock into it. Then it begins to work.

**QUESTION:** What about the problems of marrying live action in a set that's built normally so that it will intercut with the miniatures?

**FRAKER:** There are some tricky problems in that respect, because the perspective has to be the same. So it takes a lot of paying attention to what the hell you

Continued on Page 1277

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**The 7+7 fluid head as seen here weighs 5 lb. 14½ oz.**

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At left: 16SR with 10-150mm zoom lens. At right: with 8mm prime lens.



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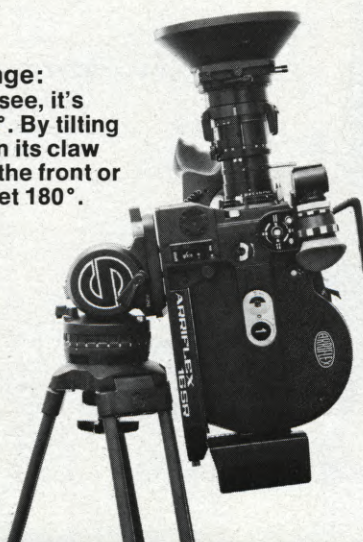
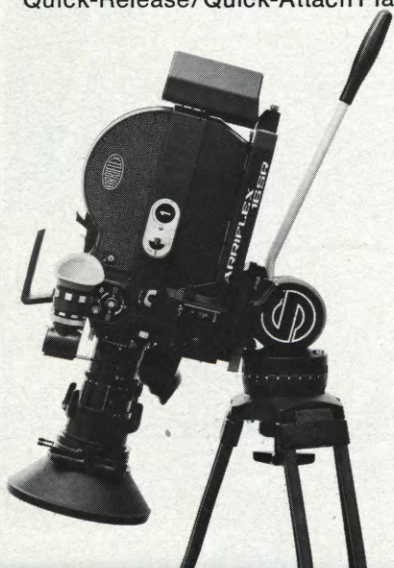
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## DIRECTING "1941" Continued from Page 1215

parachuting in at night and that they have built a secret landing strip in a Pomona alfalfa field. He is the most paranoid colonel you will ever meet in a film. Warren is real good at playing paranoid people. He convinces you that there is something out there.

In the cast also are a lot of people who had not been on the screen before, or who had only been in a few television shows. Bobby Di Cicco is wonderful; he plays Wally, our kind of underdog lead. Dianne Kay, who is a member of the EIGHT IS ENOUGH family, plays our Walt Disneyesque love interest. Wendie Jo Sperber, who was in I WANNA HOLD YOUR HAND, is wonderful as Maxine, a girl determined to win the heart of our bully-villain, Treat Williams, who plays a character named Corporal "Stretch" Sitarski.

Everybody in this movie wants something. I assembled a trailer which pretty much tells why this movie is so happily confusing. Everybody wants something. Walt wants Betty, Sitarski wants Betty, Betty doesn't know what she wants, Kelso wants war, Warren Oates wants troops, Stilwell wants order, Dan Aykroyd wants a crowd, Donna Stratton (played by Nancy Allen) wants wings. (She'll only make love at 10,000 feet.) Everybody wants something in this picture, and it's a story about all of these wants and desires that, in effect, bring Los Angeles to its knees within 12 hours on a Saturday night.

Because "1941" is not a linear charac-

ter study *a la* JAWS, or even CLOSE ENCOUNTERS, the pacing is more erratic than that of anything I've ever done before. The movie takes off like a bat out of hell—the first sequence is Gangbusters. Then the seven stories have to be set up, which requires the audience to be somewhat patient with the film, and which is why, in a way, the audience is a little antsy for about 25 minutes while the action slows down to set everything up. But once the big dance contest occurs in the USO, the film is paced faster than anything I've ever done or probably will do in the next few years. It's just the seven stories colliding with each other like a nuclear reaction—which means that the picture is erratic in its pacing, but that's just the nature of the beast. There's no way, without those miserable 25 minutes, that we could have introduced 14 people and set up seven stories. However, once that's done, the audience just sits back and goes with it.

Of technical interest is the fact that the LOUMA Crane was used consistently throughout the filming of "1941", despite the fact that I hadn't intended to use it so extensively.

I first saw the effect of the LOUMA Crane on a video tape commercial that was being circulated around Hollywood to show the strong points of the device. At that time I thought of it as nothing more than a trick tool. But when I saw it perform in Deauville, France, two festivals ago, I was really amazed at its versatility and how it could get you where no camera or operator could go before. In "1941" I had originally only planned to

Continued on Page 1258

Although only 32 years old, Steven Spielberg, has been making films for more than 20 years. Even his childhood efforts were not mere "home movies", but full-length epics replete with complicated special effects. With a track record that includes JAWS and CLOSE ENCOUNTERS OF THE THIRD KIND, he seems to have an unerring sense of what the mass young film audience will respond to.





## SMPTE EQUIPMENT

Continued from Page 1241

and can perform many interlock functions.

In this same vein, Multi-Track Magnetics (MTM) has introduced the model SETC-1 "Shaft encoder/SMPTE Time Code Generator". When fitted to their 16mm sprocketed sound recorder/reproducers, it will generate an SMPTE time code in both forward and reverse at any speed as if it were coming off the tape, yet the full coat need not have any time code track whatsoever.

Time Code readers are showing up on editing machines also. Steenbeck now offers the model ST 60 time code decoder and motor control. This device includes a swing-out console (see photo). By entering time code numbers, the machine will automatically locate scenes on both picture and sound track and precisely sync them up. The unit includes LED readouts of time code position, and code sensors for both the film and soundtracks. The soundtrack code readers employ Hall element sensors that allow time code reading even at extremely low speeds. The system also includes an interface electronic module for the motor control. The ST 60 package is available on all 16mm Steenbeck editing tables, if so specified at time of order. Retroactive

installation is only possible if table was delivered "prepared for ST 60".

Although not a time code reader, KEM now has the Cine Sync EC-1 which is an electronic counter system that displays: footage and frames in both 16mm and 35mm, total frames, Min/sec and frames at both 24 and 25 fps and can convert between footage, frames, and time among other features.

The Cinemonta tables by Oldelft are beautiful examples of Dutch engineering. The Cinemonta tables offer the new "Optical Crown" which replaces the conventional rotating prism. This device is a ring made up of a series of discretely mounted precision lenses which results in a bright, distortion free *flickerless* image. This year Cinemonta introduced a new table with several interesting features, most notably a "pitch corrector". This device maintains normal voice pitch even if the machine is run up to two times sound speed.

The Twenty Fourth Frame has also added some nice features to its popular flat bed. A pitch correction device is available option providing normal sounding audio instead of the usual "chipmonk" effect at high speeds. Pitch correction is affective from 1/2 to 2 1/2 times sound speed. Another feature of the C-16 is single-sprocket sound which facilitates precise sound editing.

## LIGHTING

Interest in HMI continues to build. More manufacturers are building HMI units, and those companies previously committed to HMI have expanded and improved their lines. The French LTM Company has one of the most complete lines of HMI type devices. This year they introduced a new "Ambiarc 200" 200 watt HMI. What makes this unit interesting, is that LTM mounts the bulb axially rather than "side-to-side". By doing so and constructing the reflector to fully surround the bulb, almost all the light output is controlled and directed by the reflector. In contrast, the radially or "side-to-side" mounted bulb "spills" most of its forward light output, as the reflector can only direct these rays emitting to the side and rear. LTM claims a 50% to 100% increase in light output efficiency from the new axially designed AMBIARC 200 when compared to its own radially constructed 200 watt HMI. The new unit is also very compact and light, the head weighing less than 4 lbs. LTM also has a new mains monitoring device called a "Phase-scope". It incorporates an oscilloscope which displays the phase relationship between the mains frequency and a built-in crystal or it can reference the mains to any external signal such as a camera's

Continued on Page 1264

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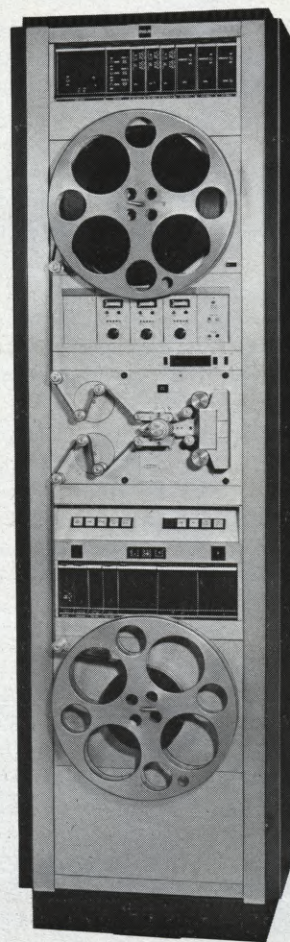
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# RONALD NEAME TALKS ABOUT "METEOR"

This latest in a long string of disaster films concerns a gigantic hunk of rock from outer space speeding toward a collision with Earth

Consider the horrifying possibilities of a comet streaking through the far reaches of space, crashing through the asteroid belt, causing a massive explosion and sending a five-mile-wide meteoroid, preceded by massive fragments, on a collision course with earth.

The possibility, much more than mere speculation according to leading scientists, exists and the dire consequences of such an impact on earth is the subject of American International's tense and vivid motion picture, METEOR.

The \$17 million production was filmed with a cast of internationally known stars and directed by one of the industry's foremost filmmakers.

The all-star cast is headed by Sean Connery, Natalie Wood, Karl Malden, Brian Keith, Henry Fonda, Trevor Howard, Martin Landau and Joseph Campanella.

Ronald Neame, who directed the first, and to date possibly the best film of this genre, THE POSEIDON ADVENTURE, was charged with the responsibility of directing the epic METEOR.

In 1968, the Massachusetts Institute of Technology undertook a study entitled Project Icarus focusing on the orbit of the asteroid Icarus which causes a near miss with earth every 19 years. MIT brought together a scientific task force to study and develop a feasible plan of defense against these cosmic bombs should one of them ever enter earth's atmosphere.

When producer Ted Parvin heard about Project Icarus, he brought it to the attention of his partner, Arnold Orgolini. Together they decided that the subject matter had all of the elements of an absorbing adventure-drama film.

Months were spent assembling a staggering collection of scientific data in-

cluding every known case of a meteorite striking the earth. This was not only to give the film authenticity but to give screenwriters Edmund H. North and Stanley Mann a solid basis for an exciting, tense and vivid drama.

The filmmakers also recruited a staff of leading authorities in the field of astronomy and astrophysics to serve as technical advisors for sequences involving the explosions in deep space that send the massive meteor hurtling toward the earth.

In an interview with the New York Times during production, Director Neame said, "I would not have taken on this project if it had been just another disaster film. Something about this story caught my interest. We all know that the massive craters in Arizona and Siberia were caused by comparatively small meteors . . . nothing as large as the one in our film. This film deals with a threat that could be all too real."

In METEOR, Neame has put on film the most terrifying live action effects ever seen in a motion picture.

When METEOR went before the Panavision cameras under cinematographer Paul Lohman, it was quickly recognized throughout the motion picture industry as one of the most ambitious film projects ever undertaken in Hollywood. Principal photography took six months, followed by ten months of grueling work on special optical effects.

A major portion of METEOR was filmed in Los Angeles using three Hollywood studios. Five entire sound stages at MGM were utilized for individual sets needed for the massive project. The largest group of film craftsmen ever assembled for a single motion picture were brought together to make METEOR a re-

ality. Over 500 carpenters, painters, special effects technicians and other craftsmen were employed to construct some of the most elaborate sets ever built in Hollywood.

Included in the distinguished technical staff was Edward Carfagno, production designer, a three-time Oscar winner. Other Academy Award winners include Jack Solomon, sound mixer; Glen Robinson, special effects; and Carl Kress, film editor.

With incredible attention given even the most minute detail, Carfagno designed to exact specifications the control centers and the consoles used at the NASA headquarters, as well as an exact-scale set of the U.N. Security Council Chamber with a replica of the world-famous mural, and an immense N.Y.C. subway terminal and tunnel system complete with train.

The top-secret command center, entitled Project Hercules in the film, used to control an orbiting battery of nuclear weapons, was patterned after NASA's Luna Receiving Lab in Houston. It turned out to be a veritable wonderland of workable telemetric gadgetry valued in excess of a million dollars and took 8,000 man-hours to construct. It contained enough building materials to construct six, 5-room houses.

The total cost for all the sets exceeded \$5 million with post-production miniatures and special optical effects exceeding \$3 million.

An unbilled star of METEOR is the vast subway terminal which occupied every square inch of one of the world's largest sound stages. Copied after New York City's Fulton Street station and tunnel system, it is utilized in a sequence featuring the headquarters for the top secret

(LEFT) In the film METEOR, a fragment of the unwelcome visitor from space strikes New York, causing the Hudson River to break through the subway tunnel, inundating it with mud and water. Copied from New York's Fulton Street station and tunnel, the subway set took three months to build and is considered the largest indoor set ever built in Hollywood. (RIGHT) A meteor splinter crashes through the ceiling of a NASA control room.







(LEFT) Director Ronald Neame lines up a camera angle. A true "Renaissance Man" of the film industry, Neame has performed most of the major functions of filmmaking as producer, writer, director, cinematographer and editor. (RIGHT) Neame wades into the thick of it. In this case *mud*—more than a million pounds of it that was stored in giant tanks built 50 feet above the set. It was released on cue through a network of special pipes and sluice gates.



#### Project Hercules.

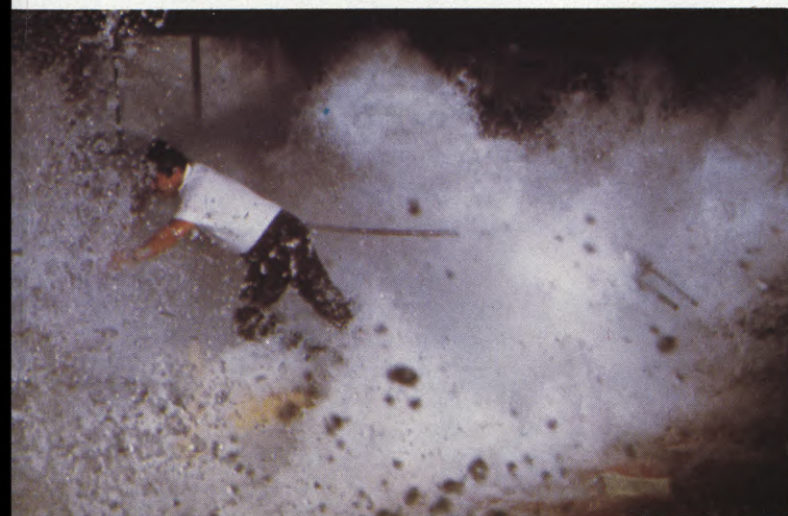
The METEOR subway set took three months to build, and is considered the largest three-dimensional indoor set ever erected in Hollywood.

It was here that one of the most spectacular and potentially dangerous sequences ever filmed took place . . . a fragment of the meteor strikes New York causing the Hudson River to break through the subway tunnel, inundating it with mud and water.

For this sequence, more than a million pounds of mud was stored in giant tanks built 50 feet above the set. The mud, a special compound of porous clay used by oil well drillers, was released on cue through a network of special pipes and sluice gates. During the three weeks it took to film the scene, the actors were subjected to daily baths of the thick, slimy mud mix which came gushing down on them from all directions, filling the set until it reached above their waists.

This ordeal prompted Connery to comment, "This is the most frightening set I've ever worked on. There are a couple of hundred actors and crew here and I assume at the end of the day, they'll all still be here."

Following the studio shooting portion of the schedule, Neame took his crew on an eight-week international filming tour. First stop was Washington, D.C., to film in NASA's headquarters. Next was St. Moritz, where, at the height of the sea-



(LEFT) Tons of water sweep a path of destruction, as a meteor-caused tidal wave takes its toll. (RIGHT) The company journeyed to Hong Kong, where 10,000 persons became actors and reacted in terror to the enormous man-made tidal wave. (BELOW LEFT) Another flying splinter of meteor sheers the tops off of twin towers. (RIGHT) A meteor-triggered avalanche wipes out some hapless souls. Snow scenes were filmed in St. Moritz, where Neame was lucky enough to encounter 12,000 skiers competing in a cross-country marathon. Through the magic of special effects, they were skillfully worked into the film as victims of the avalanche.





son, thousands of skiers were used as a background for Neame's cameras as a thundering avalanche was set off by the Swiss government for the film company. From there, the company proceeded to Hong Kong where 10,000 persons became actors and reacted in terror to an enormous man-made tidal wave.

#### THE DIRECTOR

Ronald Neame began his career as a messenger at England's Elstree Studios at the age of 14. Over the next 50 years, he performed every creative chore possible in the film business including becoming Alfred Hitchcock's assistant cameraman on the first British talking film, *BLACKMAIL*. He subsequently went on to become a cinematographer on such films as *MAJOR BARBARA* and *ONE OF OUR AIRCRAFT IS MISSING*, for which he received an Academy Award nomination.

Additionally, he has written and produced many films, making his directorial debut on *TAKE MY LIFE* in 1948. Since, he has directed such films as *THE MAN WHO NEVER WAS*, *THE SEVENTH SIN*, *WINDOM'S WAY*, *THE HORSE'S MOUTH*, *TUNES OF GLORY*, *THE ODESSA FILE*, *THE PRIME OF MISS JEAN BRODIE* and *THE POSEIDON ADVENTURE*.

In the following interview with *American Cinematographer* Editor Herb Lightman, Ronald Neame discusses some of the challenges and excitement involved in the production of *METEOR*:

**LIGHTMAN:** You are one of those very rare virtuoso filmmakers who has performed professionally every major operation of motion picture production—including that of cameraman, writer, producer, director and editor—having started as what we call

a "gofer" in your very early teens. Before discussing your work on *METEOR*, could you tell me a bit about your early days as a cameraman?

**NEAME:** Well, things have changed a great deal since then, especially in the area of lighting. Even many years later when I photographed my first film in color, my key light was 1200 footcandles. That was on *BLITHE SPIRIT*. But in the days when I first went into the studio there were banks of mercury vapor lamps all the way around the set to provide a basic light level. This meant that you had about 250 footcandles before you even started to "light" the set. The mercury vapor lamps gave off a very green light and I was always very embarrassed because, at the age of 15, I had a very pimply face (as many young men do) and when I went in to hold up a number in that awful green light, my face looked horrendous. I very nearly left the film industry just on that basis alone.

**QUESTION:** In addition to the mercury vapor lamps, you did use some arcs also, didn't you?

**NEAME:** Yes, there were Kleigs, which, I think, is what we used to call the big arcs. They were 500 amps, as I recall, and they had no proper lens on the front, just a piece of glass. The beam had a very hot center and a very dark edge, so you could never get any really accurate lighting spread across an area. I don't even think the carbon was fed automatically. It had to be turned by hand, so if the electrician got a bit lazy you would end up with only about 50 percent of the arc's capacity.

**COMMENT:** Since those were the silent movie days, you at least didn't

have to worry about camera noise and boom shadows.

**NEAME:** True. And also, when I first went into the studio three films would be in production on the same stage. I remember that an actor-turned-director named Miles Mander was directing a film with Madeleine Carroll, who was a lovely beauty, and still is. I was very impressed, as a 15-year-old, that on my first day in the studio Madeleine Carroll was having a bath on a closed set. Each production had its own orchestra with mood music to fit the film. A little further up the stage they were making a film called *TONY*, starring Jack Buchanan, and he was playing two parts. We had split-screen in those days but, of course, it was all done in the camera. If you wanted a split-screen shot you first shot the left half and then, with a closed shutter, wound the film back to an exact footage mark. Then you did the same again with the right half. It was all done instantaneously.

**QUESTION:** What sort of camera equipment did you use?

**NEAME:** The grand, wonderful, splendid new camera was the Mitchell, and I think I worked with Mitchell No. 8 or No. 9. The Mitchell people were the first, I think, to put mattes at the back of the lens for split-screens and such things, although Bell & Howell may claim that they did it as well. We also used a French camera, the DeVrie, but mostly Bell & Howells.

**QUESTION:** Do you remember which was actually the first film you worked on?

**NEAME:** Yes, I was assigned to the Jack Buchanan film as the go-fer, the tea-boy. In those days it wasn't so expensive to make a film, so one could be slightly more frivolous, and I remember that one of the first things I was given to do was go to the prop department and get a sky-hook. I imagine this has happened to a lot of young men, but I went looking for that sky-hook from department to department for the first three days and at the end of that time I was so miserable (because I thought everybody was putting me on) that I almost went out of the film industry. But I stayed and, at that same time, occupying a whole other stage (three times the space that anybody else had) was the brilliant young genius director, 28-year-old Alfred Hitchcock. Subsequently I was to join Hitchcock's unit and work with him as assistant cameraman on the first British talkie, *BLACKMAIL*. But that was two years later; I had a couple of years of silent film first.

Using the viewfinder from the camera, Ronald Neame lines up a shot for *METEOR*. Himself a former cameraman, he chooses his own angles and shoots with only one camera. He avoids multiple-camera shooting because he feels that there is only one optimum camera angle for each scene and that adding extra cameras results in compromises.

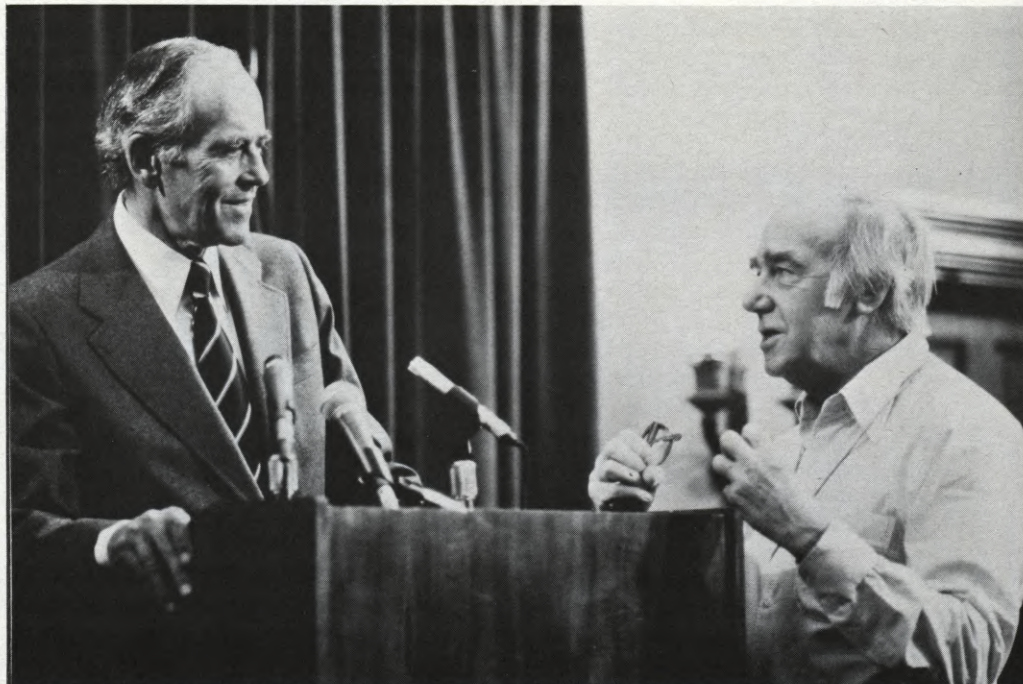




**QUESTION:** Turning now to the film of the moment, *METEOR*, can you tell me a bit about working with your Director of Photography, Paul Lohman?

**NEAME:** As far as I'm concerned, Paul Lohman is my Number One from now on. I found him tremendously comfortable to work with. He's very fast and an excellent cinematographer. I've never known such a level negative, requiring so few light changes. The rush print looks almost like a graded print. One of the things that impressed me about Lohman, quite apart from his natural ability and tremendous personality (very important for a cameraman in getting on with actors) is the fact that I've never known any cameraman so involved with and interested in filters as he is. We did a day's sequence at the airport and when we started out in the morning the light was very blue. As the day progressed the light got yellower and then, as the sun set, it was as yellow as could be—almost orange. And yet, Paul, with his filters, compensated for these shifts in color temperature all throughout the day. When I had the sequence cut on the screen, you would not have been able to tell that it hadn't all been shot in exactly the same lighting conditions. I think that is remarkable. In this area he is exceptionally good. Then too, he was helpful to me as a director for another reason which one would not normally think about perhaps. First of all, having been a cameraman myself, and also knowing a great deal about editing, I am very clear in my mind where I want the camera and how I want a scene to cut. My films, for better or for worse, can only be put together one way. I do not shoot master scenes. I do not shoot long shots, and I take the gamble of its being right in the way that I've shot it. There's not much safety stuff shot. Because of this, I know exactly where I want the camera, and I would rather deal through the operator for this than the Lighting Cameraman [Director of Photography]. Now, this is normal procedure in England. One always talks with the operator about set-up and, of course, with the Lighting Cameraman about lighting. But I have found that in America a lot of the Lighting Cameramen like the director to talk to them and then they pass it down to the operator. However, Paul Lohman feels the same way I do about this. He doesn't want to interfere between the operator and the director about where the camera is going to be, or what the zoom is going to do, and because of this we got on tremendously well.

**QUESTION:** Having handled a film as complex as *THE POSEIDON ADVEN-*



Neame gives direction to Henry Fonda. Also a former editor, Neame feels no need to shoot master scenes. He shoots very economically, filming only what he will need for the final cut. This means that there is no playing it safe. The film can be put together only one way. Such confidence comes from many long years in the film industry.

**TURE,** I would say you're used to challenging subjects. How would you rate *METEOR* in terms of the problems it presented?

**NEAME:** Quite frankly, it hasn't been a difficult film for me. My end of this project has been a straightforward piece of film production. I suppose the most difficult part, in a sense, was getting all the computers working properly, because the mechanics of that were very complicated. But it's the special effects people who have had the really tough job. They've had to give us outer space in a factual way, not in a fantasy way, as in *STAR WARS*. We've got to be convinced about this meteor on its collision course

with Earth. It has got to be menacing and enormous and frightening, and they haven't got anything to measure it against, as far as scale is concerned. It isn't as though we had spaceships or spacemen to line up alongside the meteor and show us how large it is. We haven't got that. The next thing is that the audience has got to be able to believe in these two satellites (one American, one Russian) which carry nuclear rockets that are positioned to strike the meteor. We've got to believe that those rockets are going off from the satellite in each case, finally hitting the meteor and turning it away from its course toward Earth. Such things are very, very tough to do.

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Sean Connery, playing an astrophysicist (a long way from his former role as James Bond) talks with Karl Malden, as they study a model of the American Space Shuttle piggy-backed to a Boeing 747. *METEOR* does not try to compete with films like *STAR WARS* and *CLOSE ENCOUNTERS*. It is oriented toward strict realism.





**DIRECTING "1941"**  
Continued from Page 1251

use it for the mock-up shots simulating flight and for the big dance number in the middle of the picture. But when it arrived in Los Angeles, I thought, "Hey, this is great! I can shoot a closeup and then just swing the arm around and do an over-the-shoulder shot without moving the dolly, without nailing down a tripod, without changing too much." It was a rapid-fire method of quick coverage and I was able, through use of the LOUMA Crane, to increase my coverage about 20 percent within the ever-growing shooting schedule. I thought it was an amazing device. I was able to sit over the operator's shoulder and look at the monitor and re-operate.

Now this is something that will not make operators (or first assistants who are about to become operators) very happy—when the director has the advantage of seeing how the operator is maneuvering the pan and tilt head by looking at a television monitor—but it sure helped me to see right at that moment whether I'd gotten the shot, as opposed to 24 hours later at the dailies (when it's often too late to do anything about it).

We had built a \$35,000 gimbal to maneuver the Beechcraft and the P-40 aircraft that are used in the picture. There is a whole sequence that takes place in the Beechcraft where Tim Matheson and Nancy Allen are fornicating at 10,000 feet, not realizing that they are about to start The Great Los Angeles Air Raid, as they fly into a Condition Red zone over the San Gabriel mountains. John Belushi is the rather insane captain of a P-40 Warhawk.

Both of those airplanes were reconstructed on sound stages, but on a gimbal to simulate flight. However, I found that the gimbal wasn't really that smooth. It stuck; it snapped; it moved awkwardly, not fluidly the way an airplane flies



**Spielberg blocks action for boisterous sequence in "1941", which supposedly takes place inside a USO Club. Although he and his producers were not even born at the time of the events depicted in the film, they have incisively and accurately captured the spirit of America's entry into World War II during the hectic days immediately following Pearl Harbor.**

through the sky. And I found that by moving the LOUMA Crane very fluidly I could create a more wonderful illusion of flying, against a gray cyclorama with smoke blowing through, than I could with the \$35,000 gimbal. That was one way in which the LOUMA Crane came in really handy.

In using the LOUMA Crane for photographing miniatures, I could get the lens down to a half-inch above the ground, which is the perfect scale for a miniature. It simulates a camera angle four feet off the ground in a realistic situation. I could very smoothly swing the arm of the LOUMA Crane and create fabulous trucking shots through our elaborate miniatures and, furthermore, the LOUMA Crane was able to get down within inches of the surface of the water and hold focus on the waves that were just about licking the lens. Because of Fraker's depth-of-field lighting, we were also able to hold focus on the horizon mountains, the cut-

outs, which created a very secure feeling that you were actually in the ocean watching a Japanese submarine plowing through the surf.

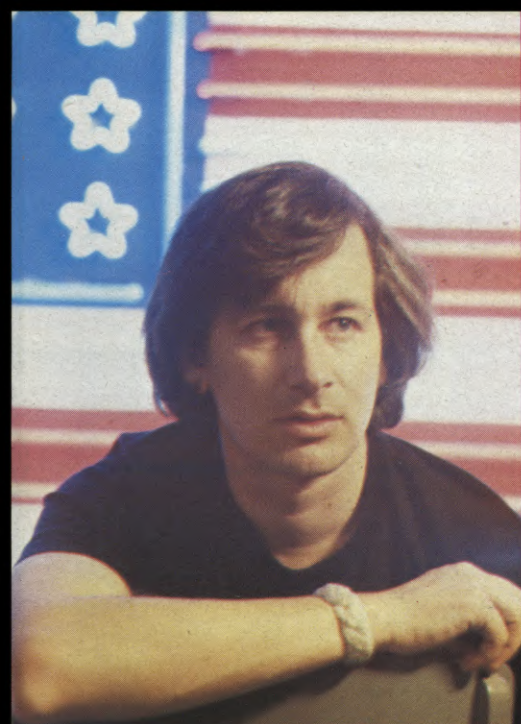
After such demonstrations of the LOUMA Crane's versatility, I made it my "A" camera; it just seemed to be more convenient. I'm very demanding when it comes to filling the frame and composing it nicely and I found that, with the 15-foot arm on the LOUMA Crane, I could fish for the right shot by looking at the monitor and I could get just the shot I wanted, as opposed to getting on the Fisher dolly and having them push me in two feet and crab to the right a foot and go up on the arm a couple of inches. With The LOUMA Crane it was like fishing for trout in a swimming pool, as opposed to fishing for trout in a lake—because I caught my limit every day with the LOUMA.

This is not to infer that the LOUMA does not have certain limitations. The viewing system is not 100 percent ac-

**(LEFT)** Spielberg explains what he wants in preparation for shooting a scene. According to cinematographer Fraker, he always knows exactly what he wants, is never at a loss to explain it or to answer questions on the set. He has outgrown his early "wunderkind" image to become a consummate filmmaker, highly respected by everyone on the crew—including the many veteran craftsmen with whom he works. **(RIGHT)** The P-40 Warhawk of "1941" seems like "kid stuff" after the imposing Mothership of CLOSE ENCOUNTERS.







Claiming that comedy (as in "1941") is not his forte, Spielberg will return to his own genre in an upcoming co-production with George Lucas.

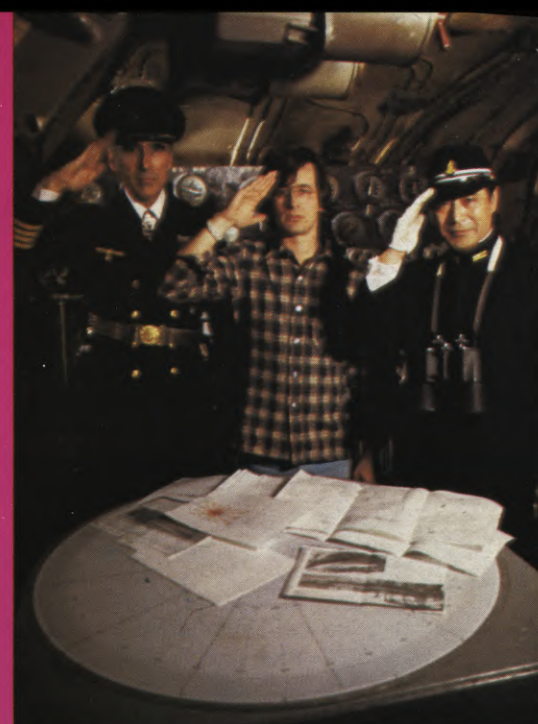
curate. It gives you a picture on the monitor in black and white, not color, and with the Standard FCC number of lines. In a night or thinly lit sequence, if a man walks into a dark garage with a flashlight, all you'll see is the flashlight and everything else will blank out. It does have its limitations on very dark sets and it is very hard to tell whether or not you are in focus just by looking at the monitor. You have to pretty much rely on the second assistant (the "focus-puller"), as we do without a television monitor, to accurately bring something into focus. Then, too, something may appear to be out of focus on the LOUMA monitor only to appear very sharp in the color dailies. The other disadvantage is that it takes a while to put it together in the morning and take it apart at night—I'd say about 15 to 20 minutes longer than assembling your dolly, dolly head and Panaflex camera.

In spite of all that, nothing else but the LOUMA Crane can move right between

the heads and shoulders of a thick crowd of people, like a shishkabob, and arrive at a perfect closeup of Dan Aykroyd giving a rousing speech to a thousand extras gathered at his feet. Nothing can dolly along the ground, with the lens virtually inches from the surface, missing rocks and debris and snakes around a whole obstacle course on a tracking shot to follow a tank or crashing airplane. I don't know of another camera that can shoot straight down and then make an arm drop to within inches of the ground and then suddenly tilt and be looking straight up again. It's the kind of machine that allows you to skewer the LOUMA arm and the camera through an automobile and, as people walk to the car, the camera pulls back all the way through the car and out the right window to showing a person sitting in the driver's seat and driving away.

It's a machine that can either be used prudently and economically or it can be used as a camera trick, and I prefer to use it more economically as our "A" camera than being fancy and skewering car windows or doing anything really elaborate with it. For me it was a nice way of quickly seeing my dailies without the use of video tape or waiting 24 hours. We certainly could not have shot the dogfight over Hollywood without the LOUMA Crane, because the LOUMA was mounted on a dolly track suspended over our miniature Hollywood Blvd. set anywhere between 15 and 75 feet. The dolly track was adjustable up and down and we had a remote monitor below and the pan and tilt gearhead was also down below. The LOUMA could chase the miniature airplanes right down the street, as the operator followed them with his gearhead down below. No other camera but the LOUMA could have done that, at least in 1979.

In certain instances with the LOUMA we could get right out over the miniature submarine in the water and drop down and perhaps truck four or five feet with



In a light moment, Spielberg gives a snappy salute with Christopher Lee and famed Japanese star Toshiro Mifune, long one of his cinematic heroes.

the submarine itself, or be low enough to give the illusion of the submarine towering over cameras that pass by, with the rumble of its engines heard. The LOUMA Crane conveniently stuck out over the ocean and got those shots with all of us on dry land. I could have done it from a platform with underwater scaffolding, but that would have taken a long time. We operated from shore—safe and dry on shore, looking at the whole thing on black and white TV. It was the damndest thing.

I shot more of "1941" in the interior of a sound stage since any other show in recent memory, since my episodic television days. I couldn't have shot the miniatures without being under a roof, and I feel that Bill Fraker has much more control and his lighting excels when he is able to light from above. It's just gorgeous. He backlights the people and backlights the hair so that it stands out

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(LEFT) Spielberg rides the Chapman crane, one of his few departures from the use of the remotely-controlled LOUMA Crane during the filming of "1941". He has a highly developed sense of where the camera ought to be for each shot and works closely with the cinematographer in working out compositions. (RIGHT) Always enamored of toys, Spielberg manipulates the model tank used in the extensive miniatures shots for "The Battle of Hollywood Boulevard".





## THE LOUMA CRANE

Continued from Page 1227

giant industrial crane or cherry-picker and as some of these can now reach out 250 feet, "helicopter shots" without noise and whirl, and danger when above people, become possible.

Only the same personnel who are normally there to tend the regular camera dolly or would be required to service a studio boom or crane are necessary to run the LOUMA Crane efficiently.

At the front end of the LOUMA Crane is the camera mounting head which remains plumb and level in all directions while the boom arm is tilted in any direction from almost directly upright to almost directly downwards.

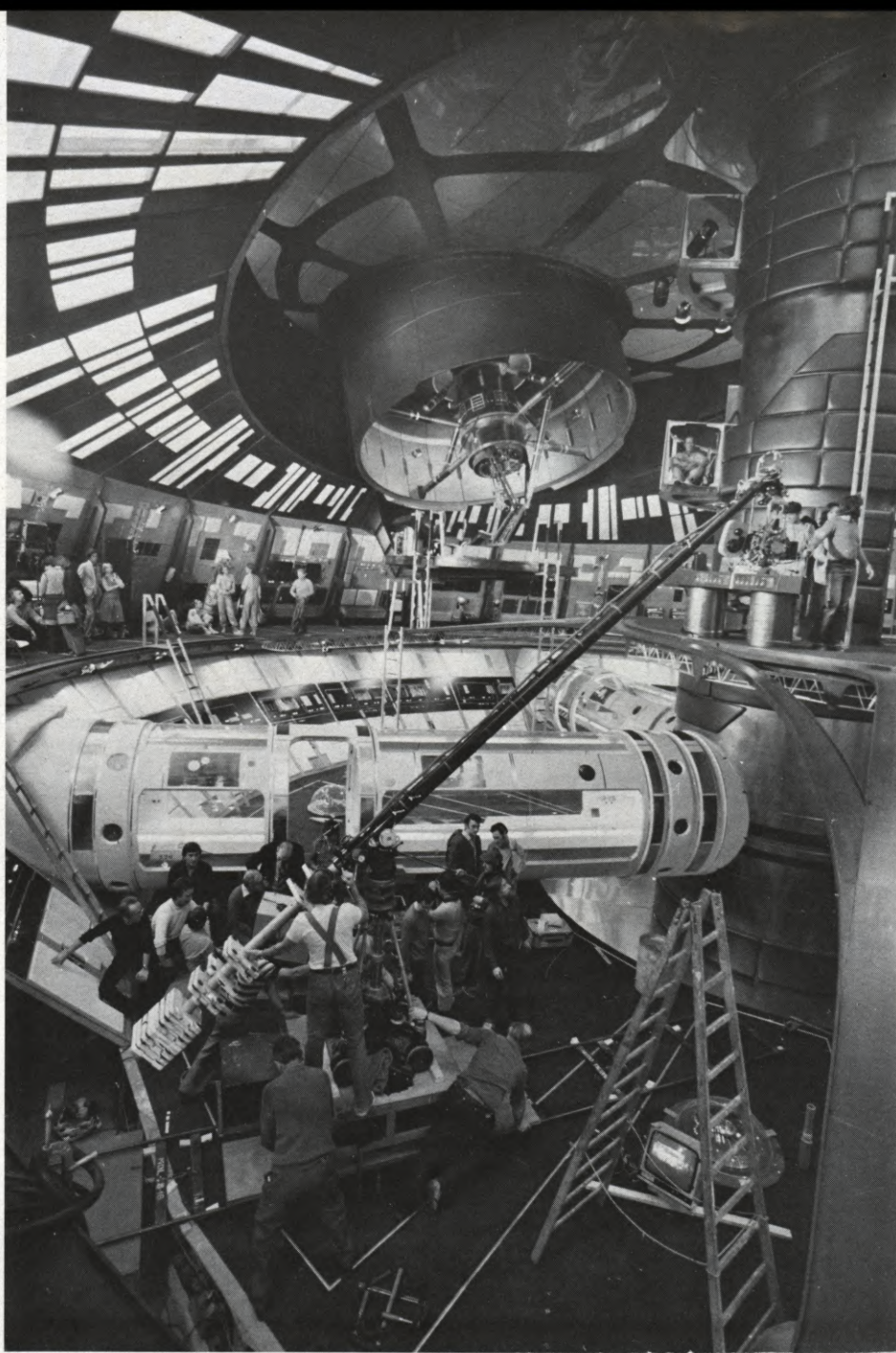
The LOUMA Crane is normally mounted on a regular camera support, such as an ELEMACK Spyder Dolly, which allows a tilt of 65° above and 75° below the horizontal throughout a 360° pan, there being no vehicle chassis or driver's cab to obstruct the movement.

The LOUMA Crane differs from the traditional camera crane in that there is no parallel link arm to ensure that the camera platform remains parallel with the ground. Instead there is a patented system of linkage incorporated within the arm itself. Such a system not only increases the angle of tilt up or down which the device can achieve, but also keeps the profile of the arm slender, enabling it to pass through small, restricted spaces where desirable.

The camera is mounted about its centre of gravity to reduce the amount of power required for panning and tilting movements. This is done by attaching it to sliding units which move from side to side, backwards and forwards and up and down for fine adjustments to balance to be made.

The cameras normally used on the LOUMA Crane are the Panavision Panaflex, the Eclair CM3 Cameflex, any of the Arriflex 35mm cameras, the Mitchell S35 Mk II, any 16mm camera that can be fitted with a T.V. Viewfinder system (most notably the Aaton 7), and any of the new generation of lightweight TV colour cameras.

Control of the camera pan and tilt movements is by gyro-assisted servo motors actuated by two handwheels mounted on a console and turned by the camera operator in exactly the same manner as though the camera were mounted on a regular film camera type geared head. The only difference is that the operator is remote from the camera and is looking at a TV monitor instead of a viewfinder. But when he turns the right-



The LOUMA Crane in operation on the set of the latest James Bond thriller, **MOONRAKER**. (BELOW) The LOUMA floats the camera over the imposing dome on the planet Krypton during opening miniature sequence for **SUPERMAN**. The LOUMA Crane is normally mounted on a regular camera support, such as an Elemack Spyder dolly, which allows for extensive freedom of movement.



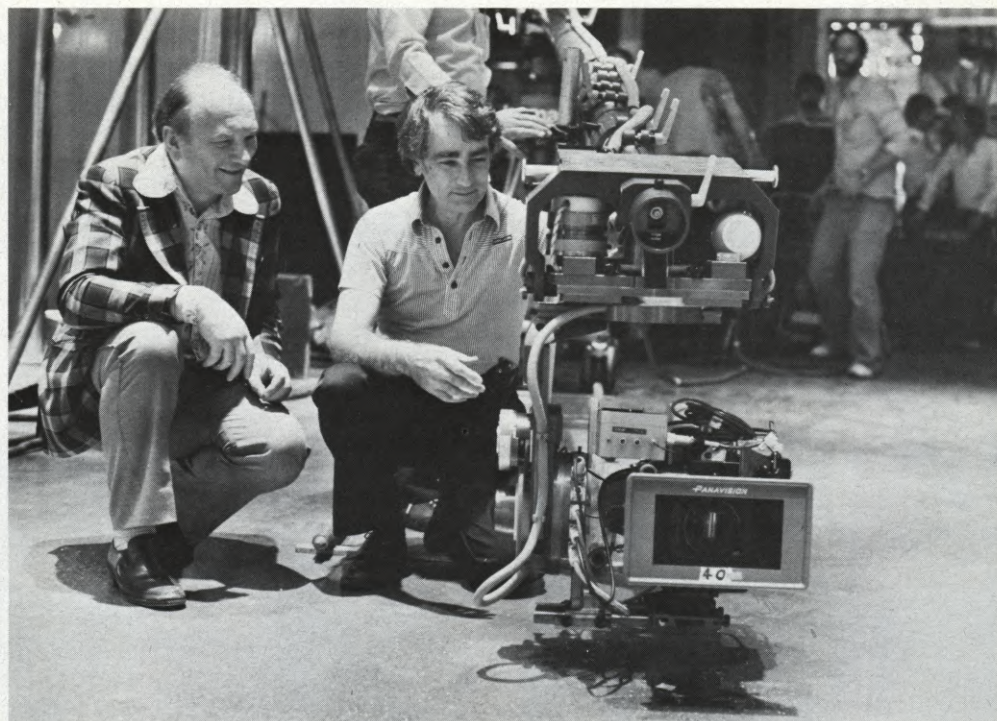


hand one of the two handles in front of him in a clockwise direction, the camera will pan to the right according to the speed at which he turns. When he stops turning, the camera will stop moving, and when he turns the left-hand handle it will tilt the camera up or down, exactly as he would expect.

This is a very important aspect of the LOUMA Crane concept because it ensures that there is no loss of the fine and responsive movement that the camera operator normally has to line up a shot and to follow a moving object, compared with the control he is used to. In the past other remote control operations have been achieved by so-called "joy-stick control" which has not proven to be a practical solution when accurate camera follow movements must be made by camera operators used to geared heads.

An additional advantage of the servo-electric pan and tilt system of the LOUMA Crane is that the relative speed of camera movement to operator's handle movement can be geared up or down electronically to suit a particular situation. For normal use, the rate of pan and tilt is set to be the same as might be expected using a regular type of geared head, be it Panahead, Moy or Worrall, but by controlling the electric power supply, the speed ratios may be changed over a much wider range, from very fast to very slow.

Experience has proved that any camera operator accustomed to using a geared head can sit at the LOUMA Crane console, view the scene through a TV monitor and pan and tilt with all the finesse to which he is accustomed. Indeed, by employing such an electrical system there is no slippage of movement as with mechanical gears (which have backlash) and none whatever at the centre of the geared quadrant compared with the more rarely used extremes, which has always been a problem with conventional geared heads.



David Samuelson, whose company manufactures the LOUMA Crane, discusses some of its capabilities with Director of Photography Bill Butler, ASC, on the set of *CAN'T STOP THE MUSIC* at MGM Studios in Hollywood. Shown here is the very latest model, one of several that are being made available for production all over the world.

Almost all of the electrical connections to the camera—for camera power, for the T.V. systems and the control motors for both the head and the lens—are passed from the boom arm by horizontal and vertical annula contact rings. This means that the camera can not only pan through 360° until it is giddy, move from a horizontal to a straight down position, but can do a complete 360° tilt. It can literally loop the loop—but, of course, photographing itself through the top 60° of movement.

As already indicated, viewfinding is achieved by the use of a sensitive CCTV camera fitted with a Nuvicon tube looking directly at the ground glass or picking up an aerial image.

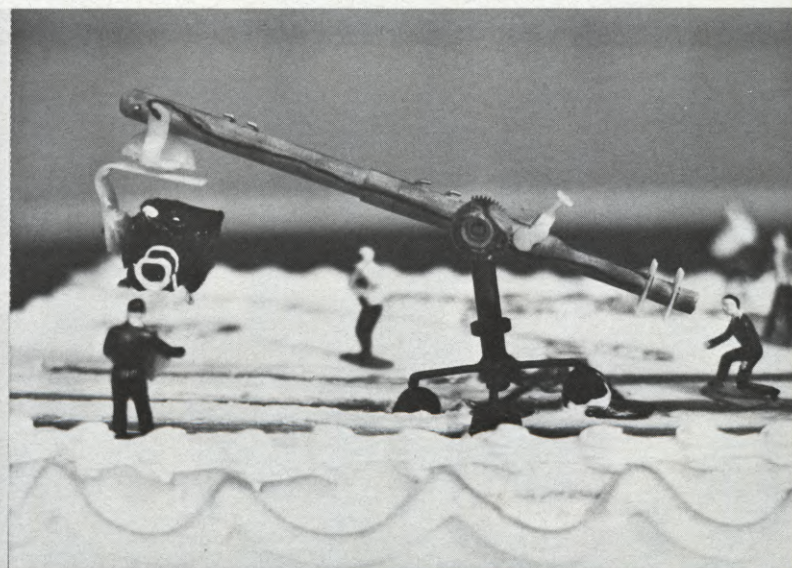
While it must be admitted that looking

through an optical viewfinder is preferable to viewing the scene by closed circuit television, the use of CCTV does offer other advantages, two of which are the fact that the director may see exactly what the camera is recording, and the other that the video may be recorded on tape for playback either for instant recall or for use at the end of the day as a comparison to economise on the number of tapes printed for dailies. Other advantages are, of course, continuity, as a visual help to the artist when accuracy of the positioning is important, use when the director is also a performer, and so on.

The LOUMA Crane is counter-weighted by the use of flat cast-iron

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(LEFT) Like a child on Christmas morning, Jean-Marie Lavalou, co-designer of the LOUMA Crane, stares in wide-eyed fascination at the birthday cake prepared for him by the crew of Steven Spielberg's "1941" in Hollywood. (RIGHT) A closeup of the miniature LOUMA Crane which tops the birthday cake. Lavalou and colleague Alain Masseron developed the first crude LOUMA Crane when they were in the French Navy and were required to make a film within the cramped quarters of a submarine.





## MECHANICAL EFFECTS Continued from Page 1221

about 50 feet. Then it hit the ground and slid into a lamppost. But to take a full-sized plane, rig it on this track and then get enough speed out of it to give it about 50 feet of flight took a bit of doing.

One of the toughest gags we had to rig was a bomb that supposedly fell out of a plane and had to roll toward a reviewing stand full of people, hit the reviewing stand and push it along with some automobiles. The bomb was supposed to

weigh 500 pounds, but to get it to roll about 150 feet in a straight line just where you wanted it to go was a little difficult. We accomplished it by putting swivels on each end of it and pulling it with wires. We had to have wires low enough so that they would not be photographed. It took a little bit of practice and timing, but eventually we did get the bomb to roll into the reviewing stand.

For one sequence we had to re-create the LaBrea Tarpits and put an airplane in there. There had to actually be tar bubbling and steam coming out of it and all of

that good jazz. We used a substance called Bentonite. It is actually drillers' mud and is very thick and gooeey. We also had to make a dye that would be washable, so that the actors could wash themselves off, and we finally came up with that.

For another sequence we took a full-sized Beechcraft, cut the wings off it and rigged a gag so that we could put a man in the cockpit and actually roll the plane 360 degrees. The rig was an offshoot of one we used years ago at MGM for a picture in which Fred Astaire danced up a wall



Carrying mechanical special effects to the ultimate degree was the sequence in which a full-size two-story home was made to topple off a cliff at the beach. The house, fully functional for interior shooting, was sawed off at the floor line, placed on rollers and secured with cables that were later severed on cue by explosive "cable cutters". It took eight men working precisely to cue to pull off the gag—obviously a "One Take" situation. Had any one of the eight been late on his cue, or if any of the mechanics had failed to work, there would have been an unscripted disaster.



"1941" is full of explosions, both in full-scale and miniature—and both had to match in "size" and effect. Here a battle rages in the full-scale Hollywood Blvd. set. For the matching miniatures, as many as 75,000 flashbulbs were used to create the matching explosions. (BELOW LEFT) When a tank runs through a paint factory, vats containing 2,500 gallons of multi-colored paint are smashed, splattering paint all over everybody. (RIGHT) The pyrotechnics in "1941" are nothing short of spectacular.





and across the ceiling. The main part of the rig was a huge circle made out of steel with rollers on it, but instead of putting a set inside it, we put an airplane inside it. Most of the gags we rig draw a bit from this picture and a bit from that picture. Then you put them all together and, hopefully, come up with what you need to get the desired effect.

One of the things that I'm more proud of than anything else is a method we devised for flying miniature airplanes on wires to give them a 360-degree barrel roll, while raising and lowering the planes. We could make the plane look like it was going into a dive or into a climb while it was moving—and still rolling at 360 degrees. To my knowledge, this has never been done before. We have certainly flown models on wires before, raised them up and down and tipped them from side to side, but in "1941" we combined all this with some really unique maneuvers. Fortunately, it was the type of show where we finally had the time and money and everything else to go ahead and work it out properly. The rushes looked just great.

Another problem on this picture—and one that we've coped with over and over again—was fog. A lot of this picture was shot in fog and it's one of the best things that can happen when you're flying miniature airplanes and using wires. It helps conceal the wires, but it's also one of the hardest things to keep consistent. When you're shooting fog for two months straight, trying to maintain that consistency gives you nothing but trouble. It just takes a lot of patience to get the fog at exactly the right level, but in order to keep it that way you have to add to it occasionally. It's really a time-consuming, waiting game, the business of having everybody ready to go so that you can photograph the scene at the proper time. It's always been a problem, but it was just one more thing to keep us hopping on this show. There is no doubt that "1941" is the busiest show I've ever worked on but, from all I've heard, it will probably turn out to be one of the best.

There were a lot of explosions in this show, both full-sized and miniature. For the miniatures it takes a certain amount of powder in order to create the effect, but the more explosive charge you use, the faster it goes and the less smoke it makes. There is an old rule of thumb with explosives that says that if you double the amount of powder, you increase the velocity four times. But you can get down to the point where things have to be so small that just nothing will work. We actually used a combination of many powders, and we wound up with the flak charges in the background coming from flashbulbs. In order to get different size



**The LOUMA Crane reaches out to shoot a scene of a full-size aircraft mounted on a gimbal. However, Flowers is especially proud of a method he and his crew devised to fly miniature planes on wires and give them a 360-degree barrel roll, while raising and lowering the planes. To his knowledge, this sort of effect has never been achieved before.**

flashes out of the flashbulbs, we would tape part of them out and just leave a hole the size we wanted. During the course of the picture we used between 50,000 and 75,000 flashbulbs to create the miniature flak (I wish I had stock in Sylvania), and most of them had to be taped with holes cut to the right size.

In order to get a bit of smoke to go with each flash, we would put a bit of grease or Vaseline on the masking tape that we used. A little oil on the flashbulb, touched off by the heat from the flash, would give us just enough smoke to make it look like flak or an explosion. We also had to dye the bulbs, because we didn't want them to look plain white. The paint department had quite a chore dying the bulbs red and orange and yellow.

All of the flashbulbs would be hanging in a straight line, but by having larger holes and smaller holes it gave the illusion that you were actually photographing depth. In other words, even though everything is in the same plane, something large appears to be closer to the camera, and the reverse is also true. We also helped this illusion by using varying amounts of oil on the flashbulbs.

In summing up my experience in working on "1941", I can only say that I've been as fortunate a person as there is in this industry in that I got to work in what was

called the Golden Era of motion pictures when Louis B. Mayer was running Metro-Goldwyn-Mayer Studios. He was really classed as a moviemaker, and he wanted to make quality movies. Steven Spielberg is a moviemaker in that same tradition. He's one of the finest that I've ever worked with. He's my type of person, because he wants to create good movies, rather than just something to make a few bucks. The two work hand in hand. If you make a good movie, you are also going to make a lot of dollars, but you have to spend the money and take the time and have patience. I've been very fortunate in working for a studio where this was their policy.

In recent years I've done several shows with Francis Coppola. He's in that category also. But Spielberg is right there at the top. He has fresh ideas and he wants quality. It's just a nice feeling to work with people like that. ■

*(ABOUT THE AUTHOR: A.D. FLOWERS is recognized as Hollywood's top wizard of mechanical special effects. He has received Academy Awards for his work on TORA, TORA, TORA (1970), and THE POSEIDON ADVENTURE (1972). His many other film credits include BEN HUR, FORBIDDEN PLANET, BATTLEGROUNDS, THIRTY SECONDS OVER TOKYO, BATAAN, RIO LOBO, TAKE THE MONEY AND RUN, SLEEPER, THE FURY, THE GODFATHER, THE GODFATHER: PART II and APOCALYPSE NOW.)*

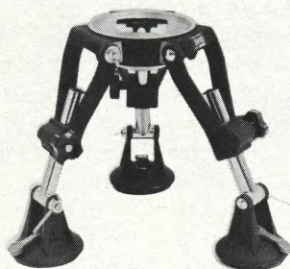


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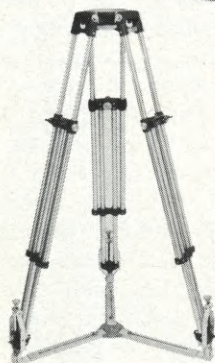


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## SMPTA EQUIPMENT Continued from Page 1252

pilotone. An LED display accurately indicates line voltage and a red/green light display signals frequency tolerances.

Arriflex has also joined the ranks of HMI manufacturers. Many people in the United States may not be aware that Arriflex has, for many years, enjoyed a fine reputation in Europe as a lighting manufacturer. Until now, these units were never imported into the States. But after seeing the new Arri HMI's it is understandable why Arriflex has decided to export these units. As with all Arriflex equipment, the lights are very well designed and beautifully finished.

It seems many manufacturers believe that 200-watt HMI lights make good portable "sun guns" as they have more than four times the output efficiency of daylight filtered tungsten "sun guns". Arriflex, LEE and Kleigl/Kobold all have very portable 200-watt battery operated HMI lights. Cine 60 has also entered the portable HMI field with their new unit arriving dramatically at the show mid-week. The 4 lb. head is focusable and incorporates a switch in the handle. It can operate from any 30-volt lighting battery.

Cinema Products is distributing the new line of Ryudensha (RDS) lights that are HMI/Tungsten convertible. By changing the insert unit, the same lamp housing can be used as a daylight HMI or tungsten type light. These lights have many other interesting features, including the ability to be interlocked and stacked into multiple arrays.

It is obvious that HMI lighting is quite popular. However, there has always been an element of controversy concerning the so-called flicker problem. Specifically, frame rates, shutter angles, and line frequencies have to maintain precise relationships in order to preclude pulsating effects on the film. Several manufacturers have attempted to minimize this problem with specially designed HMI ballasts. Kliegl/Kobold has as an option their "LO-MOD" (low modulation) ballast for their entire line of HMI lights. The "LO-MOD" is claimed to provide "flicker free" operation for all motion picture applications from 16 to 36 fps and shutter angles from 120° to 200°.

PEP, Inc. are the North American agents for the new Cremer ballast system. This new device, called the "Moduleur" created a high level of interest at the show, as it has many inventive features as well as a claimed flicker-free operation. These "Moduleur" units are made in several sizes to work with the full range of HMI bulbs and, in addition, can be modified to interface with other brand heads as well as Cremer's own line of HMI



lamps. The list of features for the "Moduleur" is impressive: no flickers, compact and lighter, insensitive to mains voltage and frequency variations, not restricting, brightness control, increased lamp life, and high reliability.

HMI's may be getting most of the attention these days. However, tungsten lighting is very much alive and kicking and getting better every day. For interiors and studios, tungsten is still the smallest, lightest, least complicated, and cheapest way to go. Ross Lowell has made his super portable and modular system of lights a little better with introduction of a new large reflector that can fit into the lid of his small kits and easily interfaces with any of the Lowel-Light stands. Another new Lowel item is his soft over-the-shoulder stand carrier. Made of a tough canvas-like material, it holds up to eight small or large stands, plus umbrellas or other accessories, yet rolls up into a tight bundle with a shoulder strap and handle.

Ferco of New York and San Francisco displayed the new "Bambino" line of lantern tungsten lights. The "Bambino's" are focusing fresnels that offer a lot of punch from very light compact units. The 6", 2Kw unit weighs only 13 lbs., the 10" 5Kw weighs 24 lbs. and the 14" 10Kw Bambino tips the scale at only 37 lbs. All units have many design features including "cool-touch" handles, good convection cooling and strong but light steel construction.

If you have to get a light high up look to the Mathews Crank-O-Vator. Although quite compact when folded (65"x18"), this device can raise a 200 lb. light to over 12 feet in the air.

#### VIDEO

There is obviously much happening in the world of video. New advances in editing techniques were shown by Videomedia, CMX, and Convergence, among others. New advances in switchers included some models with so many functions that you couldn't fit that many buttons on the console so you select the effect you want by punching in a number digitally. New digital effects generators from both Quantel and Vital boggled the eyeballs. An image can be frozen, squeezed, squashed, flipped, flopped, spun, reversed, inverted, pushed, fragmented and strobed into a thousand parts at the push of a button.

Title and graphic systems have also entered a new generation. Systems from both Chyron and Vidifont allow instant selection of type styles and sizes. They can be made larger, smaller, positioned and colored. Even logos and graphics can be programmed into these units. They include borders and drop shadows. These devices can do in minutes what it



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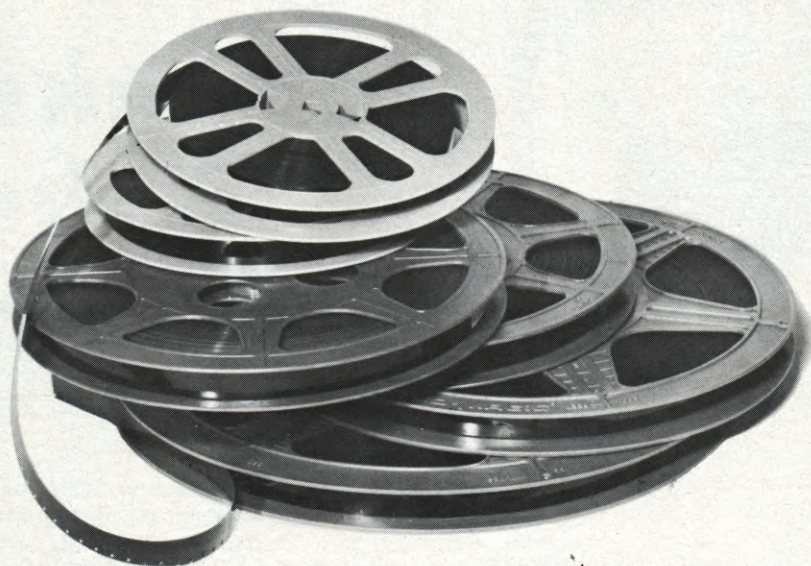
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would take a graphic house and film animator days to achieve.

In the realm of cameras, the big news was in the medium price range with three manufacturers displaying new items. Hitachi introduced the new FP-40 which uses three 2/3" Saticon® pick-up tubes and prism optics similar to the more expensive broadcast cameras. The camera head weighs just over 13 lbs. and is capable of 550 lines of horizontal resolution with a S/N ratio of 50 db which is quite impressive for a camera that is about half the price of a broadcast camera. The camera comes with a snap-on rear battery that will run the camera for two hours. The FP-40 is available for immediate delivery.

JVC introduced their new KY2000 U camera, which was an instant hit. Weighing only 10 lbs. the KY2000 incorporates three 2/3" electrostatically focusing Saticon tubes in a parallel (dichroic mirror) arrangement. It is capable of 500 line resolution and a 52 db S/N. A snap-on battery will run the camera for two hours. The most amazing feature of the KY2000 is its price; with zoom lens, case, and battery, around \$10,000.

Ikegami lived up to their reputation as the "father of the ENG Camera" by expanding the versatility of their popular HL-79A and introducing the new ITC-350 camera. The ITC-350 is scheduled for delivery sometime next spring or early summer and is sure to keep a lot of people waiting with bated breath until then. The 350 is a three-tube Saticon or Plumbicon design incorporating an f/1.4 prism optic and boasting a signal-to-noise ratio of 52 db and better than 500 lines of resolution. The 350 has an integral snap-on rear battery that will run the 11 lb. camera for over two hours. Best yet, the projected price is \$15,000 including zoom lens and accessories. Ikegami has also expanded the HL-79A system with the Ta-79 Triax Adaptor and the MA-79 Multicore cable base station. While on the subject of remote adaptors, Cinema Products, despite its name, is heavily committed to the video industry. In addition to distributing the MNC-71 camera and other video oriented products such as the new "Cameraprompter", CP has introduced an entire line of ingenious CO-AX camera controls. These devices can control a camera's iris, master pedestal, red and blue gains, peds, V & H centering, white clip, detailer, calibration, bars, among other functions, from a distance of up to 5000 feet over a single coax conductor. The system consists of a mini-ccu, a digitizer, and a decoder that attaches to the camera. The system is available for the TK-76, HL-77, HL-79, LDK-14, LDK-15, PK-39, and, of course, the MNC-71/KCA-90.



Toshiba introduced a nifty "studio-in-a-box" called a Portable Field Production Center. Entirely self-contained in a 27"x21"x13" case are three 4" mono monitors, a 6" color monitor, a waveform monitor, sync generator, tally system and intercom, a video switcher and audio mixer. It can handle three cameras and four microphones, weighs only 77 lbs. and can run off mains or 12-volt batteries. But can it make coffee?

Another intriguing item that attracted much attention was video engineer Yves Faroudja's new "Record Booster." This little white box (6"x5½"x2") attaches to any ¾" VTR and is electrically inserted between the camera and VTR. Yves Faroudja has analyzed the ways in which a ¾" VTR degrades signal quality and has designed his circuits to pre-compensate for these inherent limitations of the ¾" (and ½") VTR systems. Specifically, the unit preserves fine details that would otherwise be lost and the impressive demo tape certainly verified this fact.

Sony announced the new BVU-110 to replace the venerable BVU-100 portable ¾" VTR. The BVU-110 has some great new features including visible picture during rewind and F.F., color playback, five hours operation from a single battery.

Hitachi showed their new HR-100 portable 1" Broadcast Quality Helical Type 'C' VTR. This beautiful unit weighs only 42 lbs. and runs on 12 volts. One of its most interesting features is video playback off-the-tape while recording to ascertain that the signal is being optimally retained. Hitachi also showed the HR-200 Studio Model 1" Type 'C' VTR. It sports all the features one would expect and, in addition, a unique Non-Contact Drum system. One of the problems with the 1" type C system is that the tape is always in contact with the drum and spinning heads even during standby and fast forward and rewind. This causes increased head wear and unnecessary stresses on the tape. The new HR-200 incorporates a forced air system that blows the tape away from the drum and heads during the fast modes and pause.

That's it for another year. As usual, my apologies for any omissions. It was definitely an exciting and large show. If the SMPTE continues to grow, I'll need a clone next year. ■

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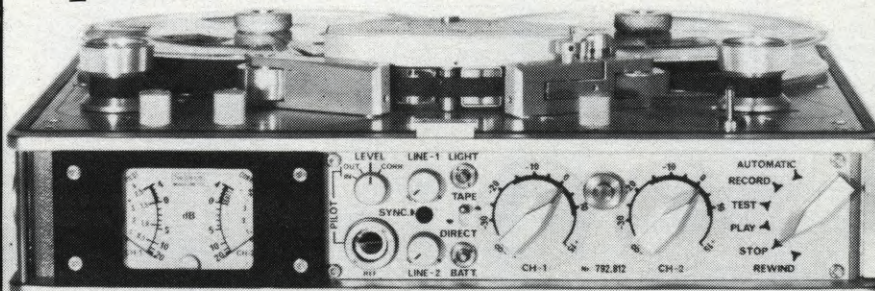
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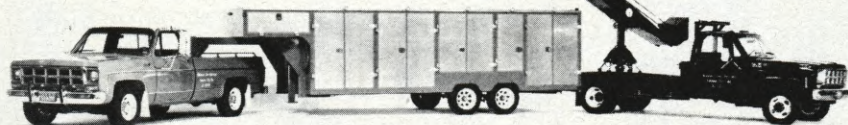
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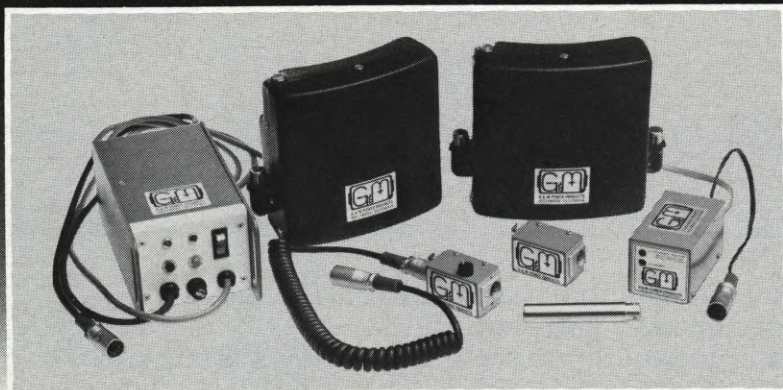
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**RONALD NEAME TALKS  
ABOUT "METEOR"**  
Continued from Page 1257

**QUESTION: Can you tell me why directing METEOR appealed to you as an assignment?**

NEAME: My reason for accepting the picture was purely to do something for my own satisfaction. I feel that most of the so-called "disaster" pictures are lacking depth of any kind. The characters are almost invariably cardboard and one-dimensional. Usually the story really has nothing very much to recommend it, beyond being exciting in terms of things blowing up and people being killed or blown to pieces. In the case of METEOR, the script does make a very strong comment, which is that if the great powers of the world don't work together we will all be in deep trouble.

**QUESTION: Does the script manage to do that without getting on a soap-box?**

NEAME: Yes, it's done through dramatic action. We discover very early in our picture that the meteor is on its way to hit us and that it will cause an explosion somewhat larger than the largest earthquake ever recorded. We obviously are fascinated to know how they can save the world. Then the Americans are forced to admit that they have in outer space a satellite with 14 nuclear warheads that are turned in the direction of the aggressive nations. It is felt that if this satellite is realigned and the rockets face outwards instead of inwards, and if the right moment is chosen, these rockets can be launched and will deflect the meteor. Then it is discovered, of course, that the 14 nuclear warheads are not powerful enough to do the job, and somebody says, "If we've got one of those things up there, why isn't it feasible that the Russians have got one up there too?" And, of course, everybody knows the Russians have got one up there—they call it "Peter the Great". But the Russians won't admit this and the problem is to get the two countries to work together for the mutual benefit of mankind. There are two astrophysicists involved. One is Sean Connery, who represents the West, and the one from Russia is played by Brian Keith—who, I must say, is the most wonderful Russian. You'd never believe it possible; he's just marvelous. At any rate, these two characters know exactly what has to be done. They can work together; they become immediate friends, even though they can't speak a word of each other's language. But the problem is to get the Establishment, the United



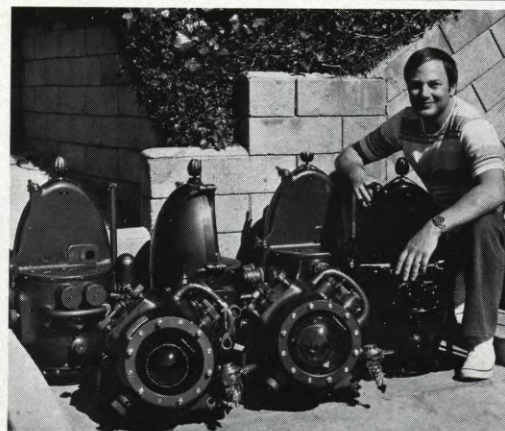
Nations, the bureaucrats and the military to allow anything to happen. They don't until the very last minute, when Sean Connery says, "If you want to bury your heads in the sand, well, do, but the meteor is coming down and the only way to combat it is to get together and do the job properly." And that, in the end, is what happens. So it is really the collaboration between the two major powers of the world that saves the world, and I think that's a comment worth making. It was a good enough reason for me to want to make this picture.

**QUESTION:** In a film like *METEOR*, the credibility factor is all-important, I should think. From your standpoint, what elements did you specifically introduce, or have to watch especially carefully, in order to insure that credibility factor?

**NEAME:** Well, the first thing one had to be careful of was not to try to outdo *STAR WARS* or *CLOSE ENCOUNTERS*. We had to go almost in the opposite direction. Instead of reaching for way-out spectacular outer space sequences that were pure fantasy, we wanted ours to look absolutely true and for real—which is more difficult for the special effects department. That realism also had to apply to our communications center, because it is usually in such places that you see the whole thing wildly exaggerated on the screen. There are flashing panels everywhere and colored lights going down and around. The whole thing is so far away from what really happens. I mean, people have seen so much of it that they believe the fiction and not the fact.

**QUESTION:** What are the "facts" of the case, so to speak?

**NEAME:** The truth is that when you go to the communications centers themselves, the real ones, like the one in Pasadena that controls the space probes, you go in there and you don't think anything is happening at all. Everybody is so cool and so calm. The whole thing is so controlled. It's true that there are counters up there for the benefit of the tourists that tell you that a certain probe is 959,000 miles from Earth, and all of the recordings from the hardware they've got in space are up there, but you'll probably find the scientists working on the project talking about who's going to beat the Dodgers next. To maintain that degree of truth and reality, while at the same time holding the audience's interest, was probably one of the most difficult things to do. I didn't want to cheat. Our communications center and the way these satellites are con-



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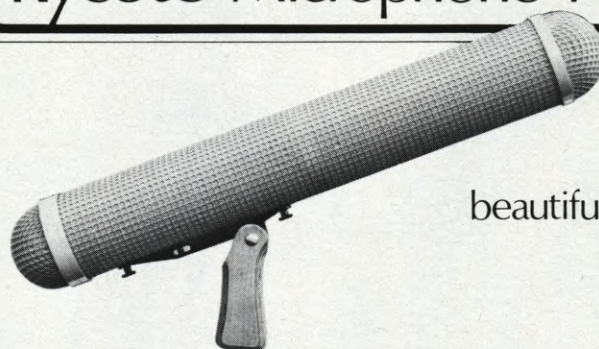
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trolled is absolutely for real; it's the way it is done. And it was difficult to get it that way. The necessity to have rather better than usual dialogue and more in-depth characters, as I've said before, was an essential part of creating that reality. I think, to a great extent, we've succeeded in doing that.

**QUESTION: Can you tell me a bit about the major locations you had for this film?**

NEAME: Yes. The two most major, of course, were Switzerland and Hong Kong. We were originally going to have one of the splinters of the meteor land in the Pacific, with the resultant tidal wave destroying Tokyo. But when I got over there to choose the locations, I realized that Tokyo had so much less to offer (in terms of what we needed) than Hong Kong. Having been to Hong Kong, I'm sure you'll agree with me there. The idea of a tidal wave striking the harbor of Hong Kong was visually much more exciting than it would have been if we had chosen Tokyo. So literally overnight we switched our activities from Tokyo to Hong Kong. The added advantage there, of course, was the proximity of the Shaw Brothers organization, which was part of the financing of our project. We got a great deal of our facilities from them and they were very, very efficient.

**QUESTION: As I recall, Hong Kong is not always the easiest place to shoot. What kinds of problems did you encounter there?**

NEAME: The major problems on the Hong Kong location were weather and the fact that, even though everybody seems to go to Hong Kong to do films, the people in the streets still cannot get used to the sight of a movie camera. Trying to shoot in the crowded streets of Hong Kong was a challenge in itself. We had between 200 and 250 extras who had literally to charge through the streets, running away from the wave. We got vague police permission, but they didn't particularly want us to do what we did. What we did, quite frankly, was set up our cameras at one end of the street and just run our 250 people like maniacs through the street, pushing everything aside out of their way as they came through. Anybody else who happened to get in the way got very, very firmly pushed to one side. It all worked out.

**QUESTION: What about the Switzerland location?**

NEAME: We were going to shoot the other big sequence—where a splinter

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hits the Alps—in the Austrian Alps, but we arrived there to find no snow, and again a dramatic overnight decision had to be made. I drove to St. Moritz in Switzerland and, within 48 hours, the entire unit had switched from Austria to St. Moritz and we were shooting there in masses of snow. Film units are notoriously unlucky with weather, I think. I wanted sunshine for the first sequence and I got a snow blizzard instead, and I wanted a blizzard for the second sequence and got sunshine. These are just the tedious things that happen and one has to switch plans. However, I did have one bit of luck in St. Moritz. Every year they have there a cross-country marathon skiing event. It's 45 kilometers, mostly across the lake. This is a free-for-all; anybody can enter the marathon by paying \$5 or whatever it is, and each is given a number. There are 12,000 people in this marathon, all starting at the same time from a little village. I suggested that we use this and have all of these 12,000 people buried beneath billions of tons of snow as a result of the splinter hitting. I got a great deal of production value out of this because you as a skier know that 12,000 people coming toward you on skis is really quite a sight. So I used that to the full.

**QUESTION:** You've had a unique career in that you've functioned in many of the key posts of production. May I ask you how this background has helped you in interrelating all of the elements involved in the production of a picture like *METEOR*?

**NEAME:** Well, I think you've really been through the mill after you've done all of the important jobs at one time or other. It does put you in a very strong position. It gives you, first of all, a great deal of confidence in what you are doing, because you do know. For example, having been a cinematographer, I know about lenses. I know when one should use a long focal length lens and when one should use a short focal length lens. I know what lenses do and what their contribution to a film should be. I've operated a camera myself, so I know what movements are good for a camera and what movements are bad. I've had to do it myself; I've had to turn the handles. Therefore, I just automatically get a good set-up, from a cameraman's point of view, not because I go out of my way to say, "Now, that's going to be good for the cameraman"—but because instinctively, deep inside of me, there is that built-in thing that would not allow me to choose a set-up that wasn't good for the cameraman. Also, having done a lot of editing, I can cut on the set to a great extent and

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cut with confidence—not thinking, “Oh my god, have I really got it?”

**QUESTION:** How do you feel about the use of multiple cameras?

**NEAME:** I believe that films should be shot with one camera, primarily because I feel that method can get you the one angle for the shot that is the right angle. Each time you bring in more than one camera, you've compromised. Now, I know there are people doing it the oppo-site way from me. They put five cameras on every scene; they shoot it from every conceivable direction. They take hun-dreds of thousands of feet of film into the cutting room, and then they make the picture in the cutting room. I disagree with this. I think it's playing safe. You know you've got it somewhere there and you can find it in the cutting room. I think you should make the film on the stage. This approach helps me be certain that what I have up on the screen in the final picture is what we shot on the stage. It's no good having an actor do something really outstanding when you haven't worked things out well enough to be sure that what he did at that particular mo-ment will be recorded to best advantage by the camera. Or you find that in order to get to the next shot you've got to get away from that shot one line earlier. It's all those technical things that one knows because one has been through it.

**QUESTION:** After your long experi-ence in the film industry, what would you say are the necessary elements to give you the best chance of making a really good picture?

**NEAME:** Of course, when you get older and you've made more films, you know better how to deal with the problems and how to keep on your schedule and on your budget. I have made bad films occasionally; all of us make bad films. We set out to make good ones every time, but we sometimes finish up with not very good ones. I believe this has entirely to do with the material. Given good mate-rial, given a good story and good charac-terizations, I know I will make a good film. But no matter how good I may be, I can-not save a bad script beyond a certain point. I believe that a film is the script. I believe that a good director, good acting and good technicians can plus that script up by a maximum of 20 percent—or minus it by 20 percent. So you have a 40 percent latitude there. But in the end, it's the script that comes out on the screen, and that's why you get the anomaly of a very fine director coming up, every now and then, with a turkey—and a not very good director suddenly



making a film that everyone acclaims. I think it is as simple as that.

**QUESTION:** If it really is that simple, why aren't there more good films?

**NEAME:** I can answer that with an analogy that may sound a bit obscure, but it does have some bearing on what I've just said. I should like to compare it with the physical properties of a camera lens. Almost everybody knows that if someone is 25 feet away from the camera and he moves five feet closer, the focus of the lens has to be changed only fractionally. You only have to turn the focus ring 1/8th or 1/4th of an inch. If he then moves to within ten feet of the lens, the amount of necessary turning of the focus ring increases tremendously. When he gets very close to the camera, perhaps only six inches from the lens, then the ring must make a whole turn to keep him in focus for that last six inches. Now, to pursue the analogy, it's easy to make a 50 percent good film. It's not too difficult to make a 60 percent good film, but it's probably four times as difficult to make a 70 percent good film and 16 times as difficult to make an 80 percent good film. In order to make the perfect film, you've got to be not twice as clever, but 50 times as clever (if not 100 times), and that's why the genius directors of the world are very few and far between. I could name one in particular, David Lean, perhaps because I've worked with him so much. The effort, the concentration, the dedication that goes into one of his films is what makes it so much better. I believe that the great directors have that dedication, and I'm not sure that I've got it. I'm a good jack-of-all-trades. I'm not a bad cameraman. I'm not a bad director. I'm a pretty good producer, I'm told, and I'm an editor. I do everything reasonably well—but I admire those who are so dedicated that they can become David Leans.

ARRI

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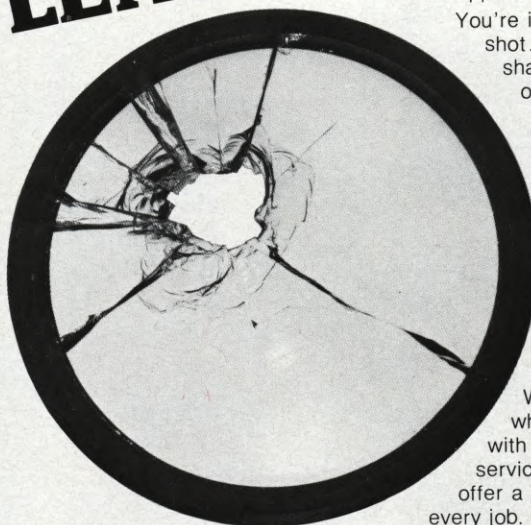
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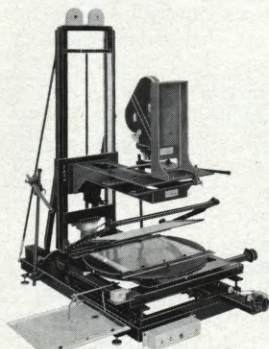
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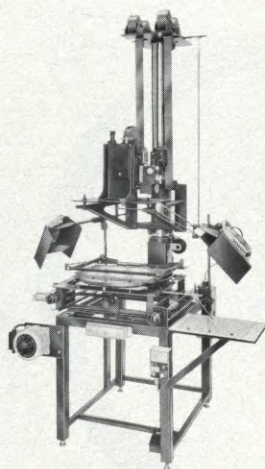
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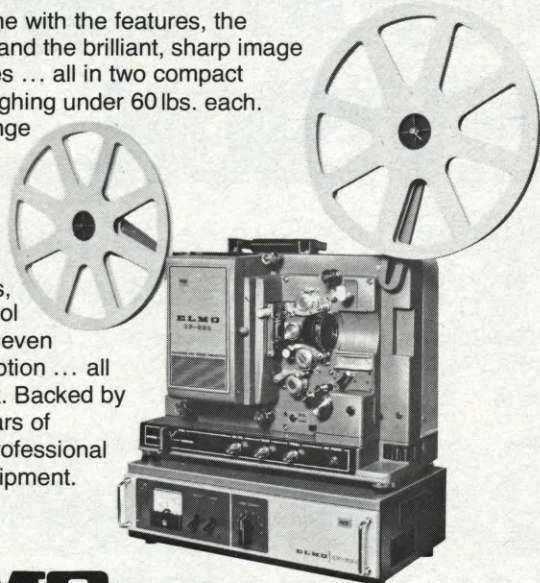
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## THE LOUMA CRANE Continued from Page 1261

counter-weights which slide onto a tube that extends in the opposite direction to the arm. Because they slide easily and may be locked in any position, fine adjustments to balance are possible.

The design of the LOUMA Crane also incorporates an adjustment for the position of the fulcrum point to make allowances for the fact that the mass weight of the camera head is not exactly on the axis of the boom arm. This adjustment is necessary for fine balance and finger-light performance in any configuration.

The fact that the LOUMA is mounted on an Elemack or other type of dolly means that the entire ensemble may be tracked forwards and backwards or crabbed from side to side or moved in a turning motion over any smooth surface and, when the going is rough, may be mounted onto a standard Elemack straight or curved tracking.

If the LOUMA Crane is perched on platform so that its fulcrum is about 22 feet from the ground (7m), it can operate in a single shot from a lens height of 4 inches (10cm) above the ground to almost 45 feet (14m) high.

If a minimum lens height of 4 inches is greater than desirable, as when shooting miniatures or worm's eye views, then a Samcine inclining prism may be used on the camera lens which will effectively lower the optical axis to about one inch (3 cm) without image inversion, light loss, or loss of optical quality or aperture. The Samcine inclining prism fits onto virtually any camera and covers down to a 24mm focal length for 35mm Academy, 50mm focal length for 35mm Anamorphic or 12mm focal length for 16mm full-frame.

Finally, the LOUMA Crane can also be mounted onto a camera tracking vehicle and, in this case, a special base affords the possibility of raising the optical axis to 24 feet, 6 inches (7.50m) and may be used over quite rough ground without objectionable vibration.

The LOUMA modular camera crane arm is very much the conception and realisation of two young Frenchmen, Jean-Marie Lavalou and Alain Masseron working with Samuelson Alga Cinema in Paris and Samuelson Film Service Ltd. in London.

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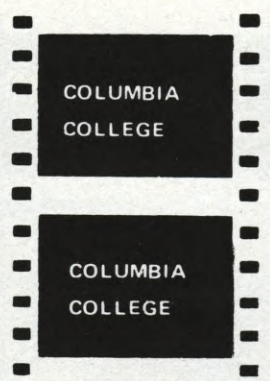
**DIRECTING "1941"**  
Continued from Page 1258

and everybody pops. It's much more difficult when you're outside and you have to achieve that same effect photographically. It's also nice to be able to walk to the restaurant and eat lunch every day, and it's nice to be able to sleep for 45 minutes in the trailer between long setups.

All of that was mainly convenient, but at the same time, I had my first taste of what it was like to shoot a real Hollywood movie because of all the studio shooting, and often I'd say to myself, "Yeah, this is what John Ford and Raoul Walsh did every day." There was a lot of studio shooting in those days and there's a real feeling of "Hey, I'm in show biz!", as opposed to being out in the middle of the Rocky Mountains when a storm blows in—or David Lean on the coast of Ireland shooting 35-foot breakers hitting the cliff walls. There is a real sense of the old-time Tinseltown on a Hollywood sound stage. For that reason, I enjoyed it. I think that if I'd shot the picture wholly on location, the film might have been less theatrical and, perhaps, a little more realistic, but I think all of us were after a kind of surrealism, a comedy surrealism.

I think that "1941" has the best miniature work since that of the Lydecker brothers in the forties and fifties. I don't know of any miniatures as authentic as the visuals seen in this movie, and I'm not taking credit for this. Most of the credit has to go to Greg Jein and his 40 miniature-makers and electricians and painters who did a job the likes of which hasn't been seen for 20 years in Hollywood.

A.D. Flowers was magnificent as the physical effects man. If you wanted an airplane to crash in Hollywood Blvd. he would do it in two weeks and his work was spectacular. It's very easy to do a miniature of a spaceship soaring to the stars, because the imagination has no bounds, and if I tell you right now that a spaceship looks like a Big Mac from McDonald's, you'll believe me, because that is my interpretation of a spaceship, but if I told you that the Hollywood Roosevelt Hotel looked like a Pink's hot dog, you would laugh in my face and say, "No, it doesn't. I'll show you what it looks like right now. Jump in the car." It's much harder approximating that kind of reality than something that is left up to one's imagination. So that's why I give them more credit than I would have on CLOSE ENCOUNTERS or STAR WARS. They had to make the Cahuenga Towers really look like the Cahuenga Towers and they had to make the Roosevelt Hotel look like the Roosevelt Hotel and, for that matter, they



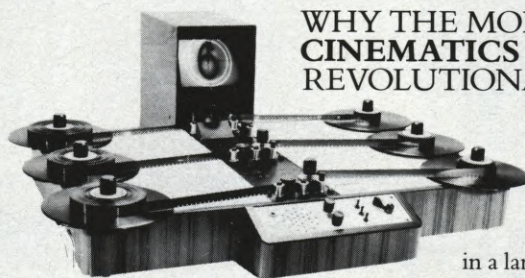
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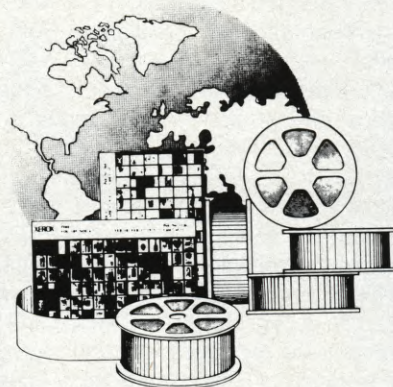
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had to make five blocks of Hollywood Blvd. look exactly the way you would have seen it in 1941 standing on a rooftop looking down. It's an extraordinary piece of work on their part.

There are very few special photographic effects (or opticals) in "1941". I purposely stayed away from that sort of thing because I'd had a successful, but frustrating, experience with it on CLOSE ENCOUNTERS, in that it would take sometimes a year to complete one special effect. I would shoot the effect on a Monday in February and then I would see the effect completed (with perhaps five or six or ten elements in the one shot) on a Monday the following February. So I found it much more satisfactory to spend a little more money to do everything in miniature and the very next day see it in the projection room at MGM and see whether it worked or not. It was much more satisfying as a filmmaker, that sort of turnover, that kind of results. But the few optical effects in the picture are very good. The work of L.B. Abbott is excellent, as always. We had to use some blue screen and that is excellent also. Larry Robinson coordinated it and put the different elements together through Frank Van Der Veer's lab. They did a wonderful job, but there aren't that many blue screen shots—perhaps 20 in the entire picture. ■

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## PHOTOGRAPHING "1941" Continued from Page 1249

are doing and what is happening and the matching of lighting. In the live shots, where we had people working in normal sets which would directly intercut to a miniature shot, beyond the people I would put an inky or baby spot and position it back maybe 50 feet and shine it directly into the camera as hot as I could. It wouldn't flare but it would create a hot pinpoint of light back there that was visible. (Maybe you'd see two pinpoints back there, of slightly different densities. One really up bright and one not so bright.) Then, when we cut to the miniature, you'd see a hot pinpoint of light in the background. There would automatically be an association, visually, and you would accept it. Many times in "1941" we would have no set for the live action, just a black background, but we'd put up pinpoints of light sometimes with colored gels in front of them. I must say that it worked absolutely magnificently. Once the audience sees a light in the background it accepts the fact that there is something back there, even though it is absolutely black. You don't question the fact that there is no set. It's night and your eye is drawn to the light. It's a marvelous little trick to use when you don't have everything you need. One might think that because a film costs \$30,000,000 you'll automatically have everything you need, but that isn't true. We deal in illusions and it's surprising what we can do with very little, once we get our heads to thinking that way.

**QUESTION: Can you tell me what mechanical means you used for creating the smoke you required, other than the improvised actual smoke pots you mentioned earlier?**


*FRAKER: A.D. Flowers and his crew came up with a smoke machine very much like the old Navy smoke machines that were used on destroyers during World War II. If there was a submarine scare in a convoy you'd hear a lot of bleeping and sirens and they'd open up these smoke machines and in a minute and a half you couldn't see anything. I don't care how many ships they had in the convoy. That's the kind of smoke we used. Those old Navy smoke machines would burn mineral oil and heat it to a point where it would condense into smoke. Then the smoke would be released and allowed to settle to the degree required for filming throughout the picture. I'm really happy about the way it worked.*

**QUESTION: According to Steven**




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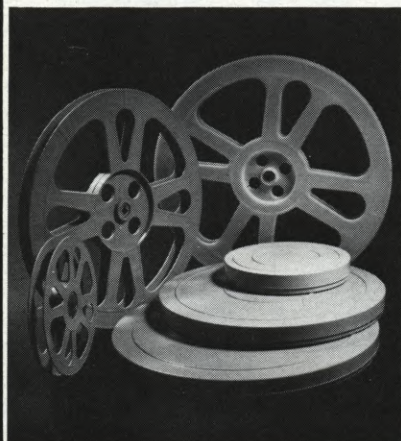
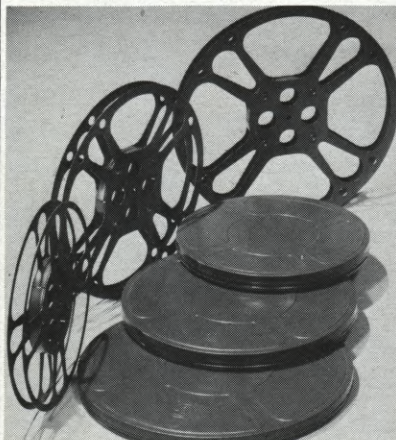


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Spielberg, the "A" camera on "1941" was mounted on the LOUMA Crane and left there most of the time. He loved it. How did you feel about it?

*FRAKER: I hated it. I love the people who are associated with it, and it's a magnificent piece of equipment, but I hate it because it represents a whole new approach to moviemaking. It's like putting the camera on the end of a sound boom. You're not worrying about boom shadows; you're worrying about how you're going to light. If somebody moves, how are you going to take the camera and boom right through the key light? How do you deal with that? Number two—you can't look through the camera when you are shooting, because you are looking through a video system and video systems in motion picture photography are abominable. They're really terrible. The video people don't care about motion pictures and the motion picture people don't care about video, so there's no marriage at this point. If we are going to use these two systems together, then I think we have to worry about a true marriage. I hate it because I'm trained to look through a film camera to balance my picture. What I see with my eye I want to get on film. I can rely on that. I can balance that way. When I worked on the LONE RANGER series with Bob Pittack, ASC, he never took a meter out. He exposed everything with his eye. He was a phenomenal man. I haven't gotten to that point yet. I'm not that accomplished. But I can tell you pretty much whether I like the balance when looking through the lens. Now, you get to a video system where you can't make that balance, and the camera is 45 feet high hanging over something, and I can't get up to look through the camera. Now I have to get up as high as I can, stand ten feet in back of the camera and start to balance by eye. That's alright too, but it isn't quite the same, because now I have to learn to deal with different values through the gray scale. Through my eye and through the lens are two different values, to say nothing of the fact that there are filters to consider. So it's a whole new learning technique and, at this point in time, I don't want to learn anything new. I'm happy enough to be able to be comfortable in my work. I've sweated enough throughout my whole lifetime—and that's why I don't like the LOUMA Crane.*

**QUESTION: Don't you have anything positive that you can say about the LOUMA Crane?**

*FRAKER: Of course I do. It's ingenious in setting up a whole new area of*

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cinematography. It allows the director to do anything he wants to do. The actors—who are basically working to a box—no longer have to have the proximity of people when they are acting, and they can deal with that. That is one psychological problem that this system can easily overcome. The real problem, if you are a cinematographer, is in trying to be as meticulous as you want to be with the whole picture. That's what we are all about. That's our bag, so to speak, and a lot of people in our ranks will object to the device. Steven loved the LOUMA. He learned to use it in two seconds and he really adores it. But it takes that kind of youth to adapt to it. The younger guys are going to adapt and it will change a lot of things. It's going to allow you to do a lot of things you've never done before. It's going to make the art directors design different kinds of sets. It's a whole new approach to moviemaking. It's going to happen—no doubt about it, because it gives you a tremendous amount of freedom.

**QUESTION:** Is there anything we haven't discussed about "1941" that you'd like to comment on?

*FRAKER:* I have marvelous things to say about everybody on "1941". Their complete cooperation, their input, their devotion and enthusiasm were extraordinary. I wish I could acknowledge every single one of them by name for their individual contributions. But Steven has a way of inspiring the best people to give 100 percent of their capacity. He's brilliant. But more than that, he knows what he wants, he understands people and he's very kind. He has very definite ideas, but he knows what he's talking about. We've got George Lucas, John Milius, Bob Zemeckis and Steven. They're all kids in terms of years, but they're marvelous. It's their world out there. They've accepted film as their own art form. They know what they want to do. They're going to do it—and they're not wrong that often. (That's the thing that is harrowing.) But I love them and I just hope that I can do more with them. That kind of contact keeps you young. It keeps you thinking. It keeps you involved in what you're doing. It's a hook—and unless you get hooked it's all over. If you become a sailor and you have a boat and you want to sail, it's a way of life. If you become a hunter and you go up and hunt, that's a way of life. Well, making movies is a way of life and once you become hooked on something like that, it's like a narcotic. It's tough to get away from. It's a marvelous way to live. If I had it to do all over again, I'd indulge myself even more.

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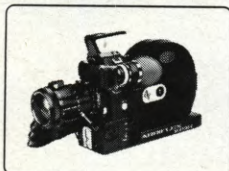
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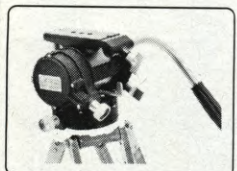
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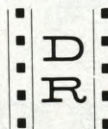
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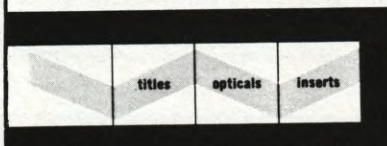
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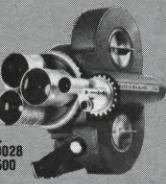
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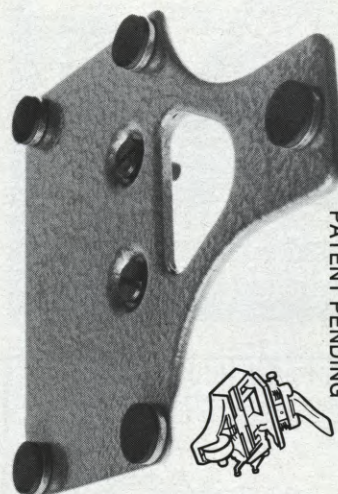
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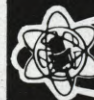
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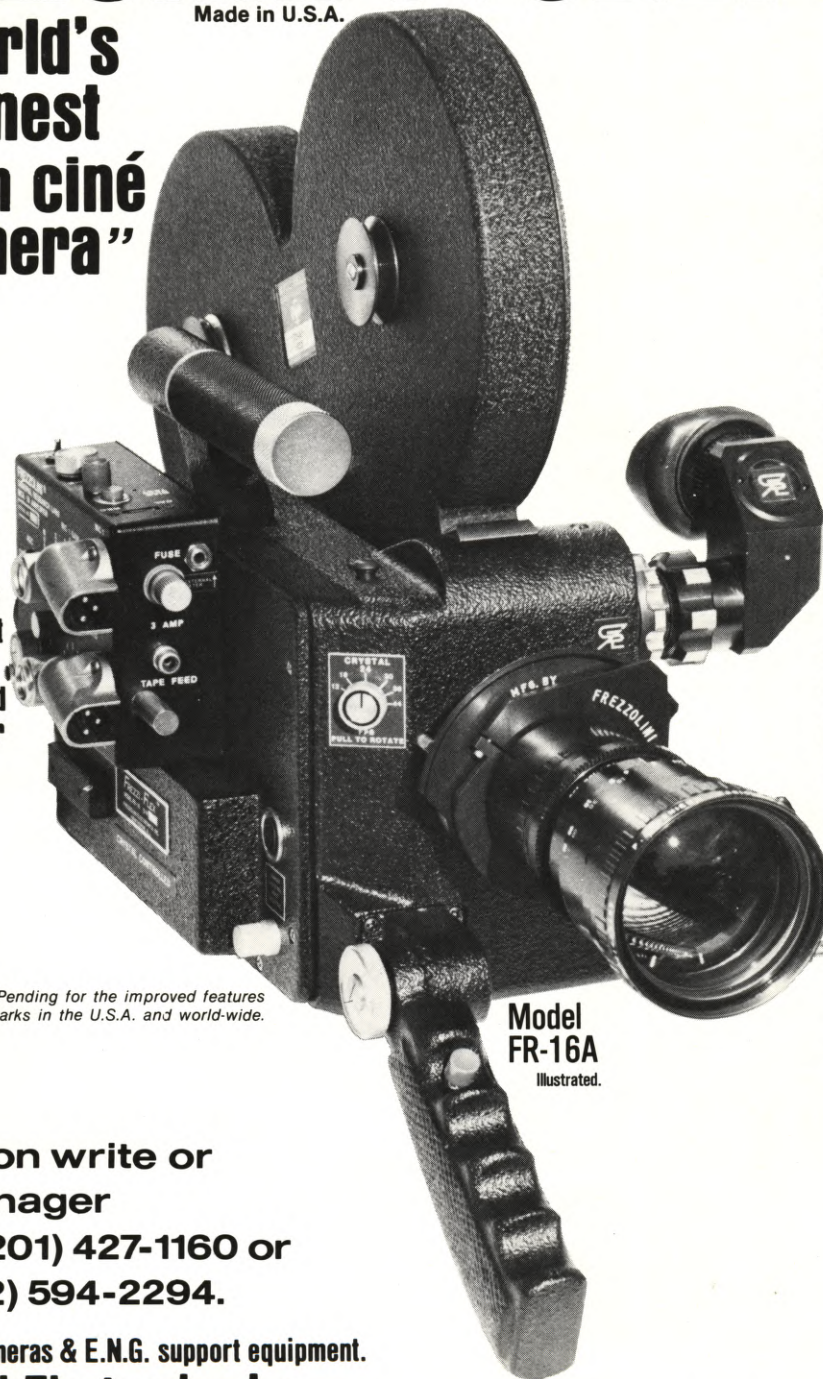


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